Journal OF THE AMERICAN DIETETIC ASSOCIATION

VOL. 25, NO. 9 SEPTEMBER 1949

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The A.D.A. Staff

Dietary Treatment of Edema in an African Boys' Boarding School

32nd A.D.A. Annual Meeting, Denver, October 10–14, 1949

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CONTENTS, SEPTEMBER 1949

MOTIVATION IN HEALTH EDUCATION—*Iago Galdston*, M.D. 745

COMPARISON OF BREAST AND ARTIFICIAL FEEDING—*Stuart Shelton Stevenson*, M.D. 752

FREE VS. CONTROLLED REGIME IN JUVENILE DIABETES—*Priscilla White*, M.D. 757

NOTES ON THE USE AND EFFECTS OF MONOSODIUM GLUTAMATE—*Rohland A. Isker* 760

NEW YORK STATE NUTRITION SURVEY. III. A Study of One Week's Food Purchases of 135 Families—*Martha Trulson, Jane Ogle, and Fredrick J. Stare* 764

EFFECT OF LARGE-SCALE METHODS OF PREPARATION ON THE VITAMIN CONTENT OF FOOD. V. Spinach—*Frank Streightoff, Benami Bendor, Hazel E. Munsell, Martha Louise Orr, Sarah R. Ezekiel, Mary Haines Leonard, Margaret Emma Richardson, and Frederick G. Koch* 770

EDITORIAL

Lulu G. Graves—*Helen Robertson* 776

The Proposed Constitution—*Anna Boller Beach* 777

City of Mansions—*Delores S. Redus* 780

The A.D.A. Staff 781

CURRENT COMMENT

Dietary Treatment of Edema in an African Boys' Boarding School—*Alice K. Strangway* 782

BOOK REVIEWS 786

TENTATIVE CONVENTION PROGRAM 788

CURRENT LITERATURE 794

LIST OF EXHIBITORS, 32ND ANNUAL MEETING AND EXHIBIT 802

NEWS NOTES 804

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Motivation in Health Education

IAGO GALDSTON, M.D.

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Much of the work of public health education must be done through the use of mass media. This fact is particularly true of adult health education, where large numbers of people must ordinarily be reached quickly and directly with a straightforward health message.

The use of mass methods of communication troubles health educators because it seems to make difficult the application of certain educational principles which have been tested and accepted. Education always occurs in the individual as he is stimulated to develop his potentialities and increase his understanding. It follows, therefore, that the best kind of teaching is that which approaches the individual in terms of his immediate situation and which, through an analysis of his problems and the provision of appropriate corrective measures, leads him to greater knowledge, broader understanding, more effective skills, and more rewarding attitudes. In addition to intimacy of association, it is essential that there be continuity of contact so that each educative experience is reinforced by those which follow it.

How is it possible to approach the individual in order to stimulate him to learn? To what extent can mass media be used to provide any true education? These two questions were the focus of a meeting of health educators in Chicago on April 7, sponsored jointly by the Health Education Committee, Health Division, Welfare Council of Chicago, and the Health Education Division, Illinois Department of Public Health.

At the time of the inception of the idea of this meeting, no one knew whether it would be a success. No such meeting had been held before on so broad a scale. It was decided, therefore, to hold it in connection with the annual convention of the Illinois Public Health Association. Since a place could not be found on the program of that convention, anyone who wished to attend the health education session had to come a half-day early.

The great success of the meeting was a tribute to the growing general interest in public health education. There was an attendance of five hundred. The percentage of registration by profession, was as follows: nurses, 50; health educators, 24; Parent-Teachers Associations, 8; nutritionists, 6; engineers and sanitarians, 3; instructors, 2.5; and social workers, 2.5. Others represented in lesser proportions were: physicians, dentists, bacteriologists, statisticians, and students.

The best evidence of the success of the session was to be found in the results of an evaluation questionnaire which all present were asked to fill out. The tabulation of results indicated that approximately 90 per cent found the program "excellent," while the rest, with four exceptions, rated it as "good."

The major speaker, and without doubt the chief attraction of the meeting, was Dr. Galdston whose paper appears below. The discussion which followed is given at the end of this article.—CYRIL O. HOULE, MEETING MODERATOR, AND DEAN, UNIVERSITY COLLEGE, UNIVERSITY OF CHICAGO.

TO BE asked to discuss motivation in health education is already in and of itself a great good deal. Not so long ago the subject would have been literally unthinkable. To begin with, the very idea of motivating education would have seemed strange. Education, like growing up, was deemed to be a process to be experienced, or, as was said more descriptively, to be *undergone*. If and when motivation was thought of at all, it was conceived as an inherent attribute of education. Knowledge was supposed to attract the mind, to offer in itself some enticing reward. Even as truth was deemed to carry the force of its own conviction, so education was supposed to be freighted with its own motivation. The fact that experience always contradicted these assumptions appeared to have had little effect upon their currency. Failure was generally attributed either to the inherent cussedness of man, or, among the more progressive, to deficiencies in the *techniques* of education. Vastly more effort has been devoted to the search for ways to make man learn what he didn't want to learn than to the study of the reasons for his resistance. Yet, of all animals, man is gifted with the greatest amount of curiosity.

I should like to be able to report, truthfully, that cumulative failure finally persuaded the educators to recognize that motivation is not an inherent attribute of education, and it thus set them to the study of motivation as a distinct science, or discipline, but that isn't really possible. The study of motivation was initiated by modern dynamic psychiatry, and is being applied to education only "by intrusion."

Motivation is a significant factor in all education,

but most so in health education, since here it means *how to get people to do the things you want them to do for the sake of their health.* The linking of motivation to health education implies affecting the behavior of the individual in the directions implied by the contents and objectives of the "education in health."

I want to underscore the fact that we are dealing with two distinctive subjects: (a) motivation and (b) health education. We need to establish quite clearly that motivation and health education, though seemingly a twain that cannot be disentangled, are, in actuality, really derived from three separate and distinct disciplines: motivation from psychology, health education from the biologic sciences, and pedagogy. Motivation charges the "lesson" with affect, or—to use a not strictly equivalent but more widely understood term—with emotional drives.

The foregoing anatomizing of health education, might seem a little *précieuse*, but in fact it is essential. Look about you and you will observe that in most health education materials, *facts*, the *techniques* of their presentation, and *motivation*, are either not distinguished from one another, or even when distinguished, are misconceived and misunderstood.

EARLY HORROR EXHIBITS OF HEALTH EDUCATORS

The history of health education shows that at first health educators were primarily and almost exclusively preoccupied with the presentation of *facts*. Some of you may be able to recall, as I do, the early anti-tuberculosis campaigns, when health education meant "pickled" tuberculous lungs, exhibited in jars; electric light bulbs flashing rhythmically on and off, every flash marking the demise of some poor soul, a victim of tuberculosis; spotted maps showing the density of tuberculosis deaths; and dismal photographs showing unsanitary tenements and filthy and depressing backyards.

Such was the "health education" of the first and second decades of the twentieth century! It depended upon the crude, bare, startling facts, presented without reference to pedagogy, and certainly without thought or knowledge of motivation. It rested on the conviction that facts, *starkly* presented, must prove the most compelling of arguments.

The belief in the persuasiveness of the bare fact has not been discarded; on the contrary, it is still very widely held. The techniques employed are more refined these days, but the greatest bulk of our so-called health education—which is not health education but disease education—still reflects the conviction that, if you but present the facts clearly and correctly, the public *must* become interested, *must* be impressed, and *must* be persuaded.

Without intending to single it out as a particularly bad example, but only because it so effectively illustrates my thesis, I want you to consider the so-called health education in social hygiene. For decade upon decade now the public has been taught that gonorrhea and syphilis are communicable diseases, that they are transmitted from the infected to the non-infected, and that sexual promiscuity is the principal cause of the spread of venereal infection. Yet I dare say, and recently revealed evidences support what I say, that all the efforts spent in spreading the *facts* on venereal diseases have had no appreciable effect on so-called sexual promiscuity, and very little, if any direct effect on the incidence of the venereal infections.

"SUGAR COATED" HEALTH EDUCATION

I referred to the beginnings of modern health education and cited the "horror exhibits" of the early tuberculosis movement. To carry the historical sketch further, we need to recall that some among the health educators soon realized that to educate the public effectively it was not enough to present the facts correctly and clearly. They discovered, in other words, that scientific facts in and by themselves were but little, if at all, charged with motivation. Then we witnessed a change. The facts were no longer presented stark naked, but were dressed up in emotions. Having myself participated in that change, I can look back upon it with a good deal of amusement, seeing how utterly naive our efforts were. For instance, I can recall employing numerous cartoons to convey our health education lesson. Arguing that a periodic health examination is desirable, we represented a man with his head in the sand, and an ostrich looking on in consternation. To show that he who neglects his health will lose it, we pictured a man playing cards with Father Time, the man stripped of everything but his undies. I recall the health clowns, the wandering gypsies, and the other entertainers who crooned health jingles, sang health songs, and exhibited their motley bag of tricks. We made animated cartoons on health facts, used puppet shows to convey our health lessons, and employed numerous other appealing "vehicles" to convey health education to the public.

Looking back upon this second phase in the development of health education, I can see in what respect it was an improvement. For one thing, it attested to the realization that bare facts in themselves do not motivate. In this new era, facts were sugar-coated with sweet emotions. Granted that one may not like to be lectured to about green vegetables, or on the need to brush one's teeth, yet it is surely more pleasant to listen to such injunctions crooned in doggerel verse to the tune of the banjo than when they are spoken soberly. The lessons on sleep, on rest, on exercise, on the washing of one's hands, and on refraining from spitting—the stock-in-trade of the health educator of that period—were less tedious

when presented in a Punch and Judy show than they had been when lecturers, posters, and leaflets literally shook their injunctious fingers at one's nose.

PAVLOVIAN OR EXOGENOUS MOTIVATION

In the health education of today we see relatively little, yet far more than we should, of the "stark fact" type, but we do see a great deal of the "sugar-coated" variety. Furthermore, it is produced in the conviction that it is effectively motivated, that it is calculated "to get people to do the things you want them to do for the sake of their health." As a matter of fact, it *is* motivated, but the motivation is of the Pavlovian order. Pavlovian motivation is motivation by conditioning. It brings together affects and experiences that are not necessarily, and indeed seldom are, related in normal experiences. Pavlovian motivation is the motivation of the huckster. It is the "trick in trade" of the advertising promoter. In it is to be found the rationale for the pretty face on the magazine cover and for the similar association of the pretty and the pleasant with those other things which the huckster has to sell.

To call this "Pavlovian motivation" is to identify and to describe its mechanism; to label it as the "trick in trade" of the huckster is to indicate who employs it most widely for what purposes. But having described it as "Pavlovian motivation," I should like now to offer still another name for it, one which suits our ends better. I should like to describe the application of unrelated or but tenuously related emotions to certain facts, as "exogenous motivation," motivation stemming from the outside.

Exogenous motivation is motivation by *artifice*, and its operations are seen most clearly in the practices of the huckster. He begins with something to sell, and proceeds to explore the ways and means by which he can motivate people to part with their money in exchange for that which he has to sell. The health educator may be more scrupulous than the huckster about the overall and ultimate good of what he has to sell, but his fundamental procedure is about the same. He, too, starts out with something "to sell." It may be cancer, or the venereal diseases, or oral hygiene, and he proceeds from there to discover ways by which he may sell his commodity to the public.

One of the outstanding characteristics of exogenously motivated health education is its tendency to push people around. It *tells* them with a none-too-successfully hidden imperiousness what they ought, what they should, and what they must do. It is often more authoritarian in tone, than in substance. It is frequently more righteous than informing. Upon a goodly portion of the population it has the effect summed up in the vulgar expression "I say it's spinach and to hell with it."

Upon analyzing the derivation of this type of health education material, it is soon discovered that the imperious and irritating overtones are practically inescapable, for its origin is almost always of this order. Some undesired and untoward condition is observed, and the health educator gets out to remedy it. To achieve this he must endeavor to get people, *nolens volens*, to do certain things. Hence the injunctions: "Do this, don't do that." Knowing that people are loath to accept and to respond to such injunctions, health education material frequently plays upon fear, and this often gives rise to "horror material." At times the resulting product is apologetic. The health educator, peering out from behind, appears to be saying: "I know the facts are unpleasant and I really don't like to force them upon you, but I must, for if *you* don't pay attention to them and act accordingly, something very dire is likely to happen to you."

At this point we may ask—why is it that so much of our health education is exogenously motivated? The explanation, I am sure, lies in the fact that the concepts of dynamic psychology have not yet percolated down to the health educators. Their assumptions as to the psychology of the individual are static rather than dynamic. They seem to think of their audience as a sleeping beauty, awaiting the animating touch of their educational materials. In reality, however, the normal individual is not passively waiting to be educated, and unless he is in a completely hypnotized state, he is not supinely open to the influences of the health educator.

THEORY OF DYNAMIC PSYCHOLOGY

The normal individual is both physically and psychologically a motile being. Any new force brought to bear upon him is confronted with the older forces already in operation, and the result may be other than anticipated and desired. It is a fact that in planning and in executing our health education services we seldom begin, as we should, by defining the "nature, quality, condition, and direction of motion" of the person whom we propose to educate. We begin rather with the *text*, with the facts to be disseminated, and with the conclusions to be drawn. Such psychology as we do apply in our labors is of the static rather than the dynamic variety.

Dynamic psychology shows that the individual is an organism with an innate momentum, whose evolvement and progression follow distinctive and characteristic patterns. From the time that he is conceived to the time that he draws his last breath, the individual is impelled by certain characteristic drives. The mosaic pattern of those drives changes from period to period as the individual progresses from intra-uterine to extra-uterine existence, from infancy to childhood, from childhood to adolescence, and so on to the end of his term on earth. In this changing mosaic there is to be witnessed the egres-

sions and regressions of interests, the rise of some and the decline of other susceptibilities, and a procession of altering wants, needs, ambitions, and curiosities. All these are subject to change in kind, in degree, and in intensity, from period to period and within any given period from time to time.

NEED TO USE ENDOGENOUS MOTIVATION

In the light of dynamic psychology, the individual is seen to be subject to complex and continuously varying patterns of inborn motivations. To be fully effective, health education must, therefore, take its cue and draw its guidance from a clear knowledge and appreciation of the inherent, that is—the endogenous—motivations of the individual, *at the time and in the circumstances in which* the individual is to be addressed.

You perceive, of course, that I have set "endogenous motivation" in apposition to, and above exogenous motivation. Let me illustrate endogenous motivation by some concrete examples.

Some twenty or more years back I unwittingly ruffled the feelings of an earnest health educator who lamented the fact that young women spent more than they could afford on silk stockings and less than they should on milk. Even twenty years ago I was persuaded that milk is a good, a necessary, and a valuable food, but I ventured to suggest (and this is what discomfited the earnest young health educator) that maybe she was wrong, and the young woman right. For, said I in support of my suggestion, if the primary business of a young woman is to get herself a husband and, if the culture of our age is such that a young woman without a sufficiency of silk stockings, permanents, facials, and so on is handicapped in the matrimonial race, and if there isn't enough money for all these things and milk also, then possibly the young woman is right in sacrificing the milk. Her instincts are likely to tell her so, and if she be a normal lass, all health teaching and preaching will avail to naught. The trouble with that health educator was that she thought primarily of milk rather than of the girl. Had she thought of the girl, she would never have permitted herself to be entrapped in so dismal an opposition as silk stockings versus milk. She would rather have sought to teach the girl how she might have silk stockings—*and milk also*. Or, in true heroic fashion, this health educator might even have waited to let true love run its course; then, when it was time to "knit booties" and the erstwhile young woman had become interested in building a sturdy little body, perhaps the health educator might have driven her lesson home—not only *unobstructed* but with a tailwind besides, i.e., by endogenous motivation.

NO BASIC DRIVE TO BE HEALTHY

I shall cite some other examples later on. Here I want to introduce a most fundamental consideration which stems from dynamic psychology, and which, perhaps better than any other, illuminates the meaning of endogenous motivation.

All health education rests upon the assumption that people prize health, that they are eager to be healthy. Accordingly, our health education is addressed to the individual in such terms as "to be healthy, do so and so," or "if you want to remain healthy, don't do so and so," or "if you want to regain your health, follow such and such instructions." But *always* we speak in terms of health, or, to be more precise, sometimes in terms of health and more often in negative health terms, i.e., of disease.

The data of dynamic psychology do not, however, validate the assumption that the individual is eager to be healthy. There is no such instinct, drive, or motivation known to dynamic psychology. The individual wants to eat, to move, to rest, to serve his body's needs. The little boy wants to grow big and strong, to be able to do things, to run, to play, to acquire and develop skills. The young man and the young woman want to be attractive, to be liked, to have friends, to advance in their studies, or works, or ambitions. Grown older, they will want love and sexuality, marriage, a home, and children. They will want many things, but they will not want health, i.e. health pure and simple, unless, of course, they are hypochondriacs or otherwise mentally and emotionally sick. When sick, the normal individuals will want to be rid of their illness, but even then not in order to be healthy, but rather to be able to get on with the business of living. There are, of course, some—indeed, quite a number—who really do *not* want to get on with the business of living, and so they become and remain sick, while presumably striving to regain their health. These individuals are quite a problem. They are particularly troublesome to their doctors who strive so hard, yet succeed so poorly in helping them back to health. The fact, of course, is that unless such individuals can be helped to acquire, or to regain interest in the business of living, they are not likely to become healthy or to remain healthy.

The universal assumption that the average man is interested in being healthy finds no support in dynamic psychology. Dynamic psychology shows rather that the individual is impelled by his basic drives toward the fulfillment of his biologic and social destiny.

It is, of course, true that without health the individual either fails to achieve his "fulfillment" or does it badly. But there does not appear to be among the basic drives one that can be described as a drive "to be healthy." On the contrary, among our basic drives there are some which involve the expenditure of self and the sacrifice of health. Man is not quite like the salmon that swims upstream to spawn and die, but in his makeup there remains something of that same primitive overmastering urge to achieve without count of self.

THE HEALTH EDUCATOR'S REAL OPPORTUNITY

Here then we come upon the crux of endogenous motivation and perceive its vital relation to health education. The matter can be summed up as follows. The impulsion to carry on the business of living derives from the basic drives inherent in man. Among these basic drives, however, there is none that can be described as the drive to be healthy. Yet to achieve fulfillment, to be successful in the business of living, the individual needs to be healthy. The average individual, however, does not quite appreciate that he needs health for successful living, nor does he know just how health is to be maintained and fostered. And that is where the health educator's opportunities arise. But, be it noted most clearly, the health educator's opportunities are not there to teach health, but rather to teach the individual how to attain his immediate goal. Inevitably—since to attain one's immediate goals, health is essential —some portion of the lesson must deal with health.

Bear in mind that, according to dynamic psychology, the goals of the individual differ and change. The ambitions and drives of the little boy are different from those he will have when a pimply, gawky adolescent, while those of the "lovelorn lass" will differ from those she will have when safely married and thinking of a family. These differing "goals" constitute the impulses we have named "endogenous motivations." They *are* endogenous, for they arise within the individual, and they are motivations because they are, in fact, powerful interests and powerful driving forces. Health education endogenously motivated, then, is founded on the current interests of the person addressed and is pointed in the direction of his immediate goal. The health data offered are such as will help to advance him toward his objectives.

It is proverbial that the lads who ordinarily will brook no restraint on smoking, eating, and so on, will, if and when they are "on the team," endure every deprivation. What for? For health? No! For victory! The boy of six cares nothing about calcium and its relation to bone structure, but if you can promise that he will be as big and strong as Popeye, the Sailor, *if* he but eats spinach—spinach he will eat. And again, why? So that he might be healthy? Hardly! So that he might, like Popeye, be powerful and unconquerable!

Our present health education, however, reveals but little insight into, or interest in, the business of living. It appears to be unaware of the fact that boys and girls, and men and women, are troubled by and are curious about things other than diseases, infections, their prevention, diagnoses, and treatment.

HOW NOT TO APPEAL TO THE ADOLESCENT

Once again I select in illustration an example from the social hygiene literature. This is a booklet addressed to high school students. In it are to be found the "standard facts" about syphilis and gonorrhea, and also the rather distressing statements that kissing may lead to venereal infection. The text is illustrated with forceful, grim, and distressing pictures! It is to my mind a fine example of exogenously motivated health education.

I can visualize the intricate process by which that piece of literature came into being. Someone was earnestly impressed by the need to bring the facts on the venereal diseases to the high school population, and they proceeded to do it. But, I doubt very much that the high school population is really interested in venereal diseases. I doubt that one could find an endogenous curiosity about syphilis and gonorrhea in the average normal youngster. I doubt that the information conveyed in that type of literature is effective. I am rather inclined to believe that this type of educational effort discredits itself, for either it is disbelieved and rejected (kissing really doesn't spread syphilis—not in the experience of most youngsters; and heavy necking vastly more often leads to marriage than to infection) or, it *is* believed and not infrequently produces crippling effects not less serious than the venereal infections and very much more difficult to cure.

WHAT ARE ADOLESCENTS' INTERESTS

What *does* interest the youngsters in our high schools? Why nothing less than this new and beautiful world, its mystery, and its glory.

Boys interest girls, and girls boys. This new, strange, and rather recalcitrant thing called love interests and troubles them. These, and what the future may bring in work and career, are among the inner stirrings, the endogenous motivations of these youngsters. Booth Tarkington in times past, and Archie Andrews nowadays well mirror the stirrings of youth, even though they reflect bathos more often than pathos.

An endogenously motivated text on social hygiene, addressed to the high school student, would first and foremost bring affirmation and assurance—affirmation that the stirrings of youth, despite all the accompanying embarrassments, confusions, and troubles, are but the precursors to the opportunities, achievements, and satisfactions of adult life; and assurance that many of the fears, superstitions, and misconceptions are indeed such. It would name them by name to discredit them. It would offer sound advice on how the youngsters might meet and deal with their common problems, in being and in behavior, and how they might advance and prepare themselves for the great adventures of adulthood. Somewhere in the text there would be mention of the venereal diseases, but only as conditions which impede progression toward youth's goals. Youth is interested in the adventure of living, in love, and in achievement. It is not ordinarily interested in the venereal diseases.

I fear that my friends among the social hygiene workers may think me rather carping in my criticism. I will offer them this much of an apology: I chose to illustrate my theme with their texts, not because they were unique in the field of health education, but because they are so strikingly fitting. The faults illustrated are fairly universal. To swing wide for a different example, we might go to *accident prevention*, where we would witness that most of the "education" centers about the physical or environmental factors which "cause" accidents. Yet it is a fact well known in dynamic psychology that most accidents result from the human factor, and that the so-called physical components are but concretions of the psychologic factor. Accidents are seldom due to ignorance. Yet I have seen but little accident prevention material which evinced an appreciation of the bearings of inner—that is, endogenous—motivations to the occurrence of accidents.

NEGATIVE ENDOGENOUS DRIVES

In this instance we come upon the negative phase of endogenous motivation. Up to now I have referred to endogenous motivation as a forward drive, as the impulsion to get on with the business of living. That is correct, but we must recognize the existence also of endogenous motivations which retard, impede, and deflect the individual's progression. We witness this in people's resistance to persuasion and education, in their clinging to superstitions and to old wives' beliefs and practices, in their susceptibility to quackery, and in their espousal of bizarre movements and causes. Even in normal development there is to be witnessed a great deal of ambivalence. It's true that the little boy wants to grow big, but witnessing his little sister being cuddled, he will want also to reclaim his place on the reassuring lap of his mother.

Many a man who takes pride in being a father, at the same time "resents sharing his wife with his children." Many parents who want their children to grow up still hobble them with excessive supervision. The woman (and man) reaching menopause, suffers from more than an endocrine imbalance. Touching upon this, I recall a piece of literature addressed to the older generation which had as its title "Don't Be Your Age"—and I wondered why. Why *not* be your age and like it?

Health education, to be effective, must appreciate the negative as well as the positive endogenous motivations and must take account of them in its plans and activities.

These negative phases are not the product of ignorance, nor are they to be dissipated by a direct attack made upon them with "fact in hand." The anti-vivisectionist is not to be persuaded by a recitation of the achievements of laboratory research, and the woman who is sure that the massage given to her by a quack is the medicine she really needs, may be quite rational in the framework of the particular distortions which affect her life.

THE HEALTH EDUCATOR'S DILEMMA

Here I must wind up my argument, and I must do so by first offering an apology in the sense of explanation, as to why I have been so critical and censorious of our current health education practices and materials. In part I feel free to do so because the indictment embraces me no less than the other fellow. Also, I recognize that the health educator labors under certain disabilities which to a large measure relieve him of blame.

Early in my presentation I noted that so much of our health education in effect is not health education, but rather disease education. Then in the second half of my presentation I spoke of health education in its literal rather than its actual meaning—as education in health. Here precisely is the dilemma which impales the health educator, for though he is called a health educator, his job in the main, the job for which he is paid, is to teach disease rather than health. This, too, is not because he is derelict and stubborn, nor because his superiors and associates are such. The fact is rather that modern health education has taken its cue from modern medicine, and modern medicine, I regret to say, has long been—and still is—more preoccupied with disease than with health.

Here you might properly ask, why then belabor the health educator? In justification I must offer two considerations: first, that the future of the health educator is bright, and his opportunities are greater than ever before, and I would have us miss out on none of those. Second, I recall that the modern health education movement, whose origin I date about a century ago, was vastly ahead of the then modern medical science and practices. Indeed, as I have pointed out before (1), some of the farseeing vision of the pioneering public health movement was overshadowed by the advent of the etiological school of medicine with its ideas on specific etiologies and specific therapies. There is no reason, however, why the health educator may not reclaim his leadership, and by a critical re-examination of his own role and function, of his techniques and their rationale, guide us all to better, longer, and more effective living.

REFERENCE

(1) GALDSTON, I.: Humanism and public health. *In* Annals of Medical History. Boston: Boston Medical Society, 1941.

DISCUSSION

Ben Park, Radio Director, Chicago Industrial Health Association, and producer of numerous radio programs: I am in complete agreement with Dr. Galdston's philosophy of motivation. Basically, he said that people do things from the viewpoint of their own special interests. We need to look at the individual as a total personality and consider all of his

drives and reactions. Exogenous motivation is authoritarian because it does not consider the individual as a person.

Radio is not a good medium for the dissemination of facts. We receive impressions on the radio. It educates in terms of the attitudes of the people. The soap opera is an excellent example of this fact. In radio the way in which we talk about a subject is the important fact. The only way in which health can be dramatized on the air is to talk about a disease. My subjects, whom I interview on the tape recorder, tell how they overcame the disease and progressed in health. I feel that the *way* they discuss this is the most effective method of educating the listener.

Arthur J, Snider, Science Editor, Chicago Daily *News*: Health education must go beyond the mere presentation of facts. It must be dramatized and humanized. Everyone likes to swallow rock-ribbed information with a little sugar-coating. There is nothing so serious but that it cannot be made to sound interesting. The nearer one can come to putting things he prints in everyday language, the more cordial will be their reception with the majority.

No one likes to be scolded or preached at or talked down to. Health education is ineffective when it tries to tell the other fellow what he *must* do. On the other hand, self-preservation is one of the basic desires of humans. The reader is interested largely in what he considers affects him personally. Health education should appeal to the self-preservation instinct.

In spite of the catering of the press to the preponderant human desire for vicarious adventure, there are many indications that news of health will occupy increasing space in the future. There is a trend toward publication of the more significant type of news.

Dr. Thomas Jones, Professor of Medical and Dental Illustration, University of Illinois Colleges of Medicine, Dentistry, and Pharmacy: While I have been listening to Dr. Galdston I have been attempting to make application of his general points to my particular experiences, the most recent of which has been preparation of the $50,000 exhibit on cancer to be placed in the Museum of Science and Industry and which is sponsored by the Illinois Division, American Cancer Society. I have found it very difficult to work out endogenous motivation in a field like cancer. I sent a questionnaire to representative individuals asking them what sort of exhibit would appeal to them and what would repel them. I have discovered that people are not interested in seeing cancer or viewing anatomical sketches.

An exhibit is always limited in time and space, and it is impelled to tell its story within these limitations. It should be a channel of communication and not a fixed pattern. The exhibit is a combination of many things, but every exhibit must be designed with a particular observer in mind. It is necessary to determine how long the exhibit will be observed, under what conditions, in what place, and in terms of what other pressures are operating in the immediate situation.

The most popular single item in an exhibit is a model. Perhaps this is because the factor of comprehension time in exhibits is important. People usually look at an exhibit for 2 min. or less and, therefore, too much detail cannot be used.

It is my own conviction that more needs to be done to develop better motivation in motion pictures. I should remind you that there are some three thousand or more films in health education, but I think no one would say that they have reached a very high level as yet. Much more work needs to be done in fitting them to the viewer and creating a true motivation within him.

T. Arthur Turner, Managing Editor, Medical Abstracts Service, Physician's Record Company, Chicago; Public Relations Counselor to the Pope Foundation, Inc.; and free-lance writer: Dr. Galdston's generalization, as I understand it, is as follows: (a) Man has certain inherent emotional drives, among which is not the drive for health. (b) To create the drive for health, or a reasonable facsimile thereof, the health educator must direct his attention to the inherent drives. As usual, however, it is when we turn from the general and get down to the particular that we run into trouble.

To accomplish the second point, Dr. Galdston envisions something different from the methods of the commercial advertiser, which, he says, consist of conditioning or, to quote him, "of pushing people around." Passing over the question of whether *conditioning* and pushing people around are the same thing, I find his meaning here a trifle hazy. Certainly he cannot mean (a) that commercial advertising is ineffective, which would be manifestly absurd, or (b) that commercial advertisers *never* appeal to basic human drives, whatever they may be. It seems apparent that commercial advertisers are interested in only one thing—results; to get results they make use of every possible stratagem. Now if *results* are the object of health education (rather than scholastic disputation), then it seems reasonable to suggest that health educators should not hesitate to use methods that work.

Perhaps also we should not have a too great disdain for conditioning. Perhaps there *is* a well-defined set of what Dr. Galdston calls "endogenous motivations." But according to the behaviorists, at least, human beings are born with very scanty instinctive equipment, and just about everything they do as social beings is the result of conditioning. A primitive jungle maiden probably wouldn't know what to do with nylon stockings, and without some sort of conditioning, it seems even more unlikely that she would associate them with the business of mating. This brings us to the distinct possibility that what Dr. Galdston calls "endogenous" and "exogenous" motivations may be like endogenous and exogenous infections, extremely hard to differentiate.

If health education has not worked (as seems to be hinted here), perhaps we might take a look at the health educator himself and see what motivates him. Perhaps a re-examination of the health educator's equipment for his job will prove more valuable than attempts to comb out the tangled skein of human motivations, which so far has proved a difficult problem even for the experimental psychologist. In the meantime we can continue to approach the problem of health education with an open mind.

There was some discussion by members of the audience and a further brief statement by Dr. Galdston which he has summarized as follows: I am grateful to the discussors of my paper but I cannot allow Mr. Turner's comments to go unchallenged. Mr. Turner began by confessing that he knew little about the subject under discussion. The rest of his comment is solid proof of how correct he was in his opening remark. What he said is in itself an example of endogenous motivation. For some reason he felt involved and aggrieved by my none too flattering analysis of "the huckster's techniques" and so he obfuscated the whole matter by misunderstanding and misapplying the argument I presented. His defence of the advertiser is unwarranted since the advertiser was not attacked. The job of the health educator is totally different from that of the advertiser. It is to the improvement of the health educator's function that I addressed myself in my presentation.

Of 30 million or so children in the country aged 5 to 17, 6.9 million in 48,000 schools were in the School Lunch Program last year.—*Nutrition News Letter, July, 1949.*

Comparison of Breast and Artificial Feeding[1]

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ORIGINALLY, the title suggested for this paper was "Breast versus Cow's Milk," but it has been changed for two reasons. In the first place, many qualified persons now feel that it is misleading to speak of one way of infant feeding being *versus* another; there are occasions when artificial feeding with cow's milk is the method of choice—in the case of a premature infant, for instance (1)—and there are many occasions when breast feeding is definitely to be preferred. In the second place, it is becoming increasingly apparent that successful feeding of infants is less dependent upon the type of *milk* used than it is upon the care and propriety with which the *feeding* of this milk is carried out. Thus, it may be helpful to consider "A Comparison of Breast and Artificial Feeding."

Possibly because of frequently repeated statements that the incidence of breast feeding is declining in the United States (2, 3), many nutritionists and physicians have embarked upon a campaign to retrieve this natural function. It is pertinent to point out here that there is no factual evidence that such a decline has actually taken place (4). Furthermore, there would seem to be no objective proof that breast feeding is to be preferred over artificial feeding under all circumstances. A few of the advocates of such feeding have given this impression, with the unhappy result that they have antagonized many thoughtful and intelligent obstetricians and pediatricians.

The natural and convenient way to feed the human infant is at his mother's breast if this is feasible and practical. In Great Britain, it has been estimated that 40 per cent of all babies are still breast fed at the age of six months; in New Zealand, about 46 per cent of the white infants are still nursing at six months of age (5, 6). In one report from Norway, 82 per cent of a selected group of infants were still breast fed at the half year mark (7). Data for this country are difficult to obtain, and overall averages mean little because of large regional variations. However, it would seem that only 38 per cent of American infants are entirely breast fed, even through the newborn period. The percentage is even lower in the northeastern section of the country where it drops to 23. The incidence of breast feeding in the United States tends to be lowest in regions in or adjacent to metropolitan centers and good medical facilities (4). This is an interesting fact, and it seems desirable to decide whether breast feeding is worth advocating and is feasible for most infants in this country.

There are at least four ways in which one may conveniently compare breast and artificial feeding: One may inspect laboratory data to evaluate the nutritional adequacy of the foods involved. One may investigate psychologic factors. One may review the practical difficulties inherent in each method. And, most importantly, one may evaluate the end results in terms of a healthy, well-nourished, well-adjusted child.

NUTRITIONAL ADEQUACY OF BREAST MILK

Let us turn first to the laboratory. There are seven commonly voiced objections to cow's milk as an infant food:

(a) It has been thought that the protein in cow's milk is inadequate because it consists mostly of casein, which is low in cystine, an essential amino acid. However, recent work (8) suggests that casein is utilized as well as lactalbumin by human beings. Furthermore, there is a large amount of total protein in cow's milk and an appreciable fraction of this is lactalbumin. Infants who are fed upon cow's milk continue to increase the percentage of the nitrogen content of their bodies at a rate approximating the fetal increase. If they are fed upon human milk containing less than half as much protein, the percentage of the nitrogen content of their bodies remains at the birth level or decreases slightly over a period of many weeks (9). It would seem that the protein of cow's milk is adequate for the human infant.

(b) It has been thought that the fat of human milk is more suitable for human ingestion. This is evidently not true (10). As a matter of fact, small infants are apparently unable to utilize any kind of fat adequately (1).

(c) It has been thought that the calcium of human milk is better utilized by the infant because of a more

[1] Presented at the 31st Annual Meeting of the American Dietetic Association in Boston, on October 21, 1948.

favorable calcium-phosphorus ratio. This is probably true, but cow's milk contains four times as much calcium as human milk, and the percentage content of calcium in the infant's body increases steadily when he is fed cow's milk, so that he has a higher relative calcium content at the end of his first year than he had at birth. On the other hand, the breast-fed infant sustains a relative loss in calcium content for many weeks, and at the end of the first year of life, the relative calcium content of his body is below what is was at birth (9).

(d) It has been thought that cow's milk is not well digested by the infant. It is now recognized that this indigestibility results from the large curds which casein forms when acted upon by rennin in the infant's stomach (11). Present day artificial feeding mixtures offer casein which has been so changed that it forms soft, small, digestible curds.

(e) It has been claimed that artificial feeding mixtures are difficult for the mother to make. Present-day mixtures *do* require some mental dexterity for their preparation, and this is one of their great drawbacks. However, the modern mixture of milk, sugar, and water is a relatively simple affair compared to the complex mixtures of thirty years ago.

(f) It has been emphasized that artificial feeding is more expensive. This is true when its expense is calculated only in terms of the money spent for the ingredients. But, when it is realized that the average woman insists on ingesting an inadequate diet, it must be admitted that lactation presents a serious drain which may be of incalculable expense to her health. Furthermore, the modern woman must not infrequently work at a part-time job in order to complement the family income; the nursing mother is unable to aid in the family's support in this manner.

(g) It is pointed out that breast milk contains in the neighborhood of 5 mg. ascorbic acid per 100 cc. as compared to boiled cow's milk which contains practically none (12). Although this is generally true, the ascorbic acid content of breast milk varies with the mother's diet, and it has seemed desirable, in clinical practice, to complement the dietary of all infants with ascorbic acid. The fact that cow's milk contains lesser amounts of vitamins A and D than breast milk has not been of practical importance because of the inadequate amount of vitamin D in both milks. This necessitates complementation of all infants' diets in this respect, and vitamin A is conveniently and cheaply added along with the vitamin D.

Thus, these laboratory data would seem to reveal no serious objections to cow's milk as a food for infants.

PSYCHOLOGIC FACTORS

It is believed that the infant gains needed satisfaction from the exercise of his sucking reflex during feeding. Although no one would suggest that a cold, rubber nipple may entirely take the place of a mother's breast, it would seem that a sufficiently small opening in this nipple would evidently offer the infant the pleasures of sucking which he seems to enjoy so much.

It is stated that the infant should be fondled and loved during his feeding if he is to be properly conditioned toward food and perhaps toward life in general. The mechanics of breast feeding offer this fondling automatically, but a mother can be instructed to offer it to her artificially-fed infant.

It seems surprising that some infants on mixed feedings prefer the bottle, if they really gain as much satisfaction at the breast as we have been led by some to believe. Surely, psychic satisfaction will not be achieved for the breast-fed baby unless the milk supply is adequate. Artificial feeding offers the easier means of ascertaining this adequacy and helps to still the mother's worries, because she can satisfy her human desire to know how much milk her baby has ingested.

This very brief consideration of psychologic factors should not be concluded without noting three points which seem significant. The first is that some American women do not seem to satisfy any maternal urge by nursing their young and indeed, one occasionally sees a woman who looks with considerable distaste upon the whole matter of breast feeding. The second point concerns work which was carried out in the Department of Maternal and Child Health of the Harvard School of Public Health in which an unselected group of 226 children was studied through at least five years of age and in many cases through eight years of age. Slightly more than one-third of these children had been entirely breast fed through three months of age or more. Each child's general emotional adjustment to his environment was carefully evaluated, and 25 per cent of the children were considered poorly adjusted by the stringent standards used (13). However, there was no correlation whatever between artificial feeding and maladjustment (14). The third point, and possibly the most important in any current discussion of psychologic factors in breast feeding is that no one has yet demonstrated factually the *long-term* effects of either breast or artificial feeding upon the total personality.

Thus, a brief survey of psychologic factors has revealed little information of help in a comparison of breast and artificial feeding.

PRACTICAL DISADVANTAGES

Let us next consider the practical difficulties inherent in both methods of feeding.

The artificial feeding of infants necessitates an obvious amount of mechanical labor in obtaining materials, in sterilizing equipment, and in concocting the feeding mixture which is to be used. It demands careful attention to the mechanics of feeding, such as the size of nipple holes, the position of the bottle,

and the position of the infant. A proper artificial feeding mixture seems to be tolerated as well as breast milk by all healthy, non-allergic infants. However, its quantity must be regulated constantly in contrast to the usually automatic regulation of supply which is achieved by the infant at his mother's breast. As a further drawback, the artificially-fed infant tends to be constipated.

The breast feeding of infants may also involve some difficulty when it is initiated. However, much of this difficulty results from a failure to place the infant at the breast regularly in his first three days of life, from the institution of "prelacteal" feedings, and from the often unfounded fears of hospital personnel that the newborn baby will lose too much weight or that he will not regain his birth weight with sufficient promptness. Furthermore, there may be the problem of the mother's nipples, their hygienic care and protection, and their anatomic adequacy for the suckling grasp of the infant. Finally, there is the very practical difficulty that a lactating mother is generally compelled to be available to her infant for feeding approximately every four hours.

Nevertheless, one is still inclined in favor of breast feeding when it is feasible, because of the many serious errors which the mother may commit in carrying out the method of artificial feeding. Once the milk supply and ingestion are established at an adequate level, the breast-fed infant is usually a joy to the pediatrician. The baby goes his way serenely and contentedly and the all too familiar telephone calls from the mother of an artificially-fed infant concerning amounts of feeding mixture and colic and constipation are blessedly absent.

RESULTS IN TERMS OF THE INDIVIDUAL

The end results of the two methods of feeding in terms of what happens to the infant are the necessary proof of the pudding. Because breast feeding is the natural means of infant nutrition, it has not seemed unreasonable to *assume* that it is the safer and more desirable method, since there are quite obviously many facets to infant feeding about which nothing is as yet known. Very possibly much of the disagreement about the two methods has resulted from attempts to justify this assumption in terms of data obtained in the laboratory or formulated by the Freudian psychiatrists. We have seen that such data do not point unequivocably to breast feeding as the method of choice. However, there is a seemingly valid clinical impression that the overall, long-term results of breast feeding justify this natural process. Difficulties in obtaining comparable control series and in correlating many variables have lessened the objective value of most clinical studies which attempt to compare the two methods; one is never sure that the breast fed infants do not represent a group selected for its healthier, better mothers or that the artificially fed infants have enjoyed a correctly prepared feeding mixture which has been offered in the proper manner and adequately complemented with necessary vitamins.

Experience in Egypt with Artificial Feeding

Let us examine three groups of infants who were artificially fed and who fared quite differently. The first group (14) was seen in the villages of southern Egypt during the latter years of the recent war. A malaria epidemic struck with paralyzing force among the adult population. Most of the infants were evidently spared, probably because of the Egyptian custom of wrapping up infants almost completely from head to foot at night time, with the fortunate result of protecting them from mosquito bites. But many of the mothers of these infants were unable to nurse them either because the women were seriously ill with malaria or because they were suffering from extreme malnutrition, a result of untended crops and unharvested foods.

A suitable feeding mixture was formulated from water buffalo milk, and earnest attempts were made to teach the population how to feed this in a sterile, proper way. Necessary vitamin complementation was provided. The same feeding mixture was employed for a group of infants in The American Hospital in the region, and they fared well, which seems proof that the mixture was adequate. Nevertheless, almost every one of the village babies so fed, of whom we had knowledge, died. It is true that some of these deaths may have been due to unrecognized malaria, but when an attempt was made to feed infants in a non-malarious region in a similar manner, the mortality was equally appalling.

This represents artificial feeding at its worst, and one might be tempted to publish the mortality statistics of this series as horrifying proof of the dangers of all attempts at artificial feeding if there were no other series from which to draw conclusions. But it is immediately apparent that there were many variables peculiar to this situation: there was ignorance; there was infection; there was inability to carry out the simplest instructions because of apathy and lack of education and because of superstition. Artificial feeding, evaluated in terms of its end result—the only valid way in which to judge it—failed completely in this instance in spite of an adequate feeding mixture and in spite of attempts to instruct the populace in the proper method of preparing and offering the food. For this group of people, in its present environment and culture, and notwithstanding the lack of supporting laboratory data, we must conclude that breast feeding offers the *only* safe means of infant nutrition.

Comparative Study in Chicago

The second group of infants was studied by Dr. Grulee and his associates (15) in Chicago during the years 1924 to 1929. The babies who were breast

fed showed a mortality of only 1.54 per thousand, while the artificially fed infants showed a mortality of 84.36 per thousand. This is a ratio of 1 to 56. The results of artificial feeding were very much better in this series than they were in the Egyptian group, but this Chicago study has become an almost classical argument for breast feeding in infancy. However, there are again several variables involved. The infants were studied twenty years ago and, although the feeding mixture was very comparable to what we accept today as suitable, the vitamin complementation of the diet was inadequate by current standards. And "it is probably true that unintentional selection was operative and threw into the class of artificially fed infants those who were in poorest health and whose mothers were least cooperative and attentive" (11). In addition, a mortality rate of 1.54 per thousand for the breast-fed babies is an absurdly low figure which has never been even remotely approached in an unselected group of infants. Nevertheless, even after making allowance for these variables and for possible statistical fallacies, it seems reasonable to conclude from this work that the practice of breast feeding is more successful, *on a large population basis*, than the practice of artificial feeding.

Harvard Investigation

The Egyptian group of babies consisted of several hundred cases. The Chicago group consisted of 20,000 infants. The third group numbers only 263 babies who were studied in the Department of Maternal and Child Health of the Harvard School of Public Health during the years 1930 to 1940 (16). Ninety-five infants were entirely breast fed for three months or longer, and fifty-five infants were entirely artificially fed. Although the economic and social strata of the infants were varied, the group was selected in that the mothers involved had enough initiative and desire to cooperate and enough interest in their babies to attend the study clinic regularly. Growth and development of the entire group were, in general, satisfactory. The artificially fed infants were given a feeding mixture and vitamin complementation which are considered quite adequate by current standards, and their mothers were carefully instructed in the preparation of the feeding mixture and the method of offering it. At the end of the first year, there was no difference in the incidence of diarrhea or of infections, other than respiratory ones, in the two groups. Indeed, the only difference between the two groups which could be demonstrated was a slight increase in respiratory infections in the artificially fed infants during their second six months of life. It seems not unreasonable to conclude that artificial feeding, when carried out properly from all standpoints by a selected group of mothers who are carefully supervised, compares favorably with breast feeding.

HOW TO INCREASE BREAST FEEDING

These three extremely different groups of infants may help to clarify conflicting statements and emotions about this whole matter of breast and artificial feeding. It is not a one-sided story. It is not merely a matter of putting the baby to breast or putting him on a bottle. There are a mother and an infant involved who intrude many other variables than that of the type of milk offered. Just as there is a method involved in breast feeding, so there is a more difficult method involved in artificial feeding which must be taught effectively if this is to be successful. It seems that breast feeding is greatly to be preferred and encouraged *for the population at large*. Because of many reasons, several of them clearly illustrated by the Egyptian babies, this population cannot be instructed successfully in the art of artificial feeding. However, it is important to stress that artificial feeding, when a mother is capable of learning the method, may be an adequate substitute for breast feeding when the latter is not practical or feasible. With this point of view, not only may fruitless, academic arguments about the relative merits of these two methods of infant nurture be avoided, but perhaps ill-advised attempts to force a mother who is either unwilling or unable to nurse her infant will cease.

It is a comforting thought that artificial feeding offers an adequate substitute for breast feeding on the many occasions when the latter is not practically possible or desirable. However, we have concluded that breast feeding is highly desirable for most normal infants. Such a conclusion must cause us great concern when we survey the figures which were cited earlier: that only 38 per cent of American babies who are born in hospitals leave those hospitals breast fed.

Is it feasible to increase the incidence of breast feeding in the United States? It would surely seem to be when one considers the figures for Great Britain and New Zealand. And when a group of mothers can be found in Norway wherein 82 per cent of them are nursing their six-month-old infants, then we must look most critically at the American figure of 38 per cent and examine the means for increasing it.

The better nutrition of American women will mean more breast milk and better breast milk (17), but milk, *per se*, is of no value unless a mother *wants* to nurse her baby. This means that mothers must be educated in the desirability of nursing; they must be educated individually and collectively so that breast feeding again enjoys a reputation of being one of the joyful and respectable fulfillments of motherhood. But this education must not be tinged with fanaticism, and the unfortunate woman who cannot nurse her infant must not be made to feel that she has failed in her duties as a mother or that she is endangering the life of her child.

Perhaps the most effective means to increase the

incidence of breast feeding is to educate those who are directly in charge at the critical time when it must be planned for and instituted: the obstetrician, the pediatrician, and the nurse. *They* must be convinced of the value of the method, and they must be convinced that it is worth the extra, temporary trouble it may cause in the earliest newborn period. We suggested, previously, that many of these professional persons have been antagonized by prejudiced, non-objective arguments for breast feeding.

Medicine and its allied sciences advance sometimes with pendulum-like swings; new discoveries and new ideas tend to be pushed toward extremes. This seems to be particularly true of the feeding of infants. When goat's milk was first introduced into this country, it was sponsored by some as the only way to feed an infant deprived of mother's milk. When acidified feeding mixtures were new, their advocates defended them fiercely as the *sine qua non* of an infant's artificial feeding. When the principle of self-demand feeding was re-discovered, its more ardent advocates preached anarchy in the feeding schedule. Each of these missionary groups, to give only a few examples, caused considerable reaction against its ideas because of an exaggerated zeal. The pendulum has swung back toward the mid-line, and doctors now accept the advantages of goat's milk or acidified milk, where these are indicated, because they have been shown objectively and effectively that these products have merit. Medical men now realize the advantages inherent in the concept of a sanely administered self-demand routine of feeding, although they recognize that certain selected mothers and infants seem to fare better on a more rigid timing of feeding periods.

Perhaps there is a clue in these examples which may guide us in convincing the doctor and the nurse that breast feeding, *in general*, is to be encouraged and preferred. Perhaps, now that we in this country have rediscovered breast feeding, we may begin to look upon it objectively and scientifically. Perhaps we may now instruct rightly and effectively those who will determine its incidence, teaching that it is natural and preferable to feed an infant at his mother's breast *when this is feasible*; but when this is not practical, or rarely when it is not desirable, that artificial feeding, properly carried out in all respects, offers an adequate alternative.

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Fish-Farming to Increase Asian Food Supply

At the recent United Nations Scientific Conference on the Conservation and Utilization of Resources, it was suggested by Sunder Lal Hora, Director, Zoological Survey of India, Indian Museum, Calcutta, that fish-farming be encouraged in Asia. He pointed out that "small domestic fish ponds can play the same role as kitchen gardens."

In certain parts of China and Malaya, in warm water ponds annual yields of 2000 to 4000 lb. of fish per acre have been recorded; in Bengal, the annual yield ranged from 700 to 2000 lb.

Fish are also useful in ridding regions of malaria-carrying mosquitoes and plant-destroying insects. Fish-breeding in rice paddies has increased rice crops from 10 to 15 per cent.

It is estimated that in the Philippines alone, there are more than 1 million acres of low-swamps and mud flats which could be turned into productive fish ponds, and in all Asian countries there are similar unused areas. In Japan, carp is already being reared in a small portion of the rice paddies. In 1946, 7400 acres, or 0.5% of the total areas, produced 3,894,000 lb. carp.—*New York Times, June 19, 1949.*

Free vs. Controlled Regime in Juvenile Diabetes[1]

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THERE is no more debated problem in diabetes today than the decision between a controlled and a free regime in the treatment of the juvenile form of the disease. The reason for the argument rests with the child's attitude toward diabetes, and the decision for management rests with the physician's belief in the cause and effect relationship between control of diabetes and the lethal complications of the disease.

Let us first analyze the attitude of the infant, the child, and the adolescent toward diabetes, then evaluate the data which we have collected concerning complications in young diabetic patients whose disease commenced in childhood, and finally, discuss a program for the handling of these problems.

The attitude of the diabetic infant presents no difficulties. Parental dependence protects him, and the normal regime of infancy should be maintained so far as diet is concerned. Insulin, of course, must be administered daily.

THE PROBLEM UP TO THE AGE OF TEN

To appreciate the task of parents and all who handle the child between the ages of one and ten, let us consider those qualities which are necessary for the success of a controlled routine. The first requisite is a sense of time—timing of diet, insulin, and exercise. The young child does not have an accurate sense of time. He tends to putter, and time drives him. The second essential is an appreciation of a cause and effect relationship which the child simply does not have. The third need is an understanding of death, that the death penalty is exacted for negligent treatment of diabetes. The young child does not have a concept of personal death. Fourth, in an ethical sense, is a sense of the need for truthfulness about records and tests, about diet and the administration of insulin. This the child certainly does not have. One way or another he aims to please with good reports. None of these more or less philosophical concepts are developed to any extent in childhood until about the age of nine.

The child's actual attitude toward his disease in this period is good. He constantly volunteers, "Thus and so will happen when I recover from diabetes." Depending upon future discoveries, we believe, too, in the future recovery and, therefore, we acquiesce. The questions asked by the child are good but are asked out of curiosity. Because of the lack of wisdom, the knowledge acquired is not applied. Thus, we do not expect a child between the ages of one and ten to be a responsible diabetic patient.

THE PROBLEM WITH ADOLESCENTS

The attitudes of the patients in adolescence toward the disease are easily understood, for the adolescent must fit into the pattern established by his contemporaries. To do this successfully it is usually necessary to reject the details of a controlled diabetic treatment. The high incidence of coma (40 per cent of all of our coma cases appear in the second decade) results from this negligent treatment of the disease. Between the ages of ten and twenty boys suffer depression over their future careers. Girls suffer depression over their possible future husbands. Diet breaking is a natural result of such depression.

It is right and proper for the adolescent to wean himself from protective and parental influences so that he can become a mature adult, but in so doing his medical welfare is sacrificed. He desires and at the same time fears his independence, so that this period is marked with indecision and many mistakes. By the age of seventeen, the attitude of the adolescent is usually good. The questions asked are pertinent, and it is evident that this young individual's intentions so far as a controlled diabetic routine are concerned are of the best.

Thus it is not difficult to enforce a controlled regime in infancy and after the age of seventeen, but between the ages of one and sixteen, it *is* difficult. Although we admit this situation exists and are aware of the importance of frustrations in the future behavior patterns of these patients, we still stress the controlled regimen because we answer affirmatively the two following questions: Does the free diet which results in lax control of diabetes favor the development of lethal complications? Does

[1] Presented at the 31st Annual Meeting of the American Dietetic Association in Boston, on October 22, 1948.

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a controlled routine prevent complications which are lethal in nature?

RESULTS OF UNCONTROLLED REGIMES

All students of diabetes agree that coma, lesions of the skin, and the typically enlarged liver of diabetes are the result of uncontrolled disease. Most believe that infections and neuropathies are the result of uncontrolled diabetes. The relationship of uncontrolled diabetes to vascular complications, however, is a hotly debated one.

To evaluate the problem, in 1948 we reported 380 patients whose diabetes started in childhood and who had survived twenty or more years of the disease. The ages of these patients varied from twenty-one to forty-four, but 96 per cent were below the age of forty and, therefore, below the age when we would naturally expect a high incidence of vascular disease.

The past treatment of these patients, all of whom had onset of diabetes prior to 1928, favored poor control. By 1948 standards, calories prescribed were inadequate. The insulin dose was inadequate for the first fifteen years of treatment, and it was not until 1937 that the long-acting insulins were generally used. The protein content of the diet was low. All of this fostered poor control of the disease, which we measure by the following criteria: the frequency of diabetic coma, hepatomegaly, extremely high levels of blood sugar (exceeding 400 mg.), and cholesterol levels exceeding 230 mg. The frequency of diabetic coma in this group was 40 per cent, of hepatomegaly 30 per cent, extreme hyperglycemia 26 per cent, and of hypercholesterolemia 23 per cent.

VASCULAR COMPLICATIONS

Since modern medical management has controlled the lethal effects of diabetic coma, sepsis, and even tuberculosis, I will limit the discussion of complications to the vascular lesions. In this group of young patients with more than twenty years of diabetes, the incidence of vascular disease was high, 93 per cent. Thus, 85 per cent had retinal arteriosclerosis; 75 per cent, retinal hemorrhages; 70 per cent, calcified arteries; 55 per cent, nephritis; 7 per cent, angina; and 2.5 per cent, cerebral vascular accidents. Since these complications are not evident until after the age of twenty, pediatricians have been lulled into a fake sense of security about the well-being of diabetic children.

Retinal arteriosclerosis, the least important of these complications, is significant primarily as an index of total vascular disease, particularly the cerebral and renal vascular disease; but as the process progresses, occlusion of the retinal artery and blindness can ensue. Retinal hemorrhages, the most dreaded accident in the young diabetic, were found in 75 per cent of these cases. It is the vein rather than the artery which undergoes degeneration, and from the altered vein, a large preretinal hemorrhage arises. In nature's attempt to correct the preretinal hemorrhage, connective tissue and capillaries are thrown out forming a dense scar. This scar contracts and results in the separation of the retina. The transudate which is associated with this process increases intraocular tension so that a severe painful glaucoma requiring enucleation sometimes occurs.

Seventy per cent of the patients had calcified arteries. These may be silent, but in diabetes we associate with calcification disease of the intima, and eventually expect the development of occlusive vascular disease. One of the most significant relationships between calcified arteries and clinical problems is found in the group of obstetrical diabetic patients, where we use the demonstration of calcified arteries as an index of probable fetal survival or fatality. In a group of patients who showed calcified pelvic arteries, fetal survival was only 10 per cent, and in a group specially treated, the survival rose to only 20 per cent where we expected a greater than 90 per cent survival.

The 55 per cent incidence of nephritis is serious because nephritis is the chief lethal enemy of the young diabetic.

The angina which was observed in these patients was remarkable only for the early age at onset and the rather unusual conditions which precipitated the anginal syndrome, such as pregnancy. The incidence of cerebral vascular accidents was of importance only from the point of view of the early age at onset.

DID TYPE OF CONTROL AFFECT VASCULAR DEGENERATIONS?

In considering these patients, it is natural to ask, "Did we find any evidence of a relationship between the good or poor control of diabetes and the freedom from or the presence of vascular disease?" To answer this question, we divided the patients into three groups. Group *1* was comprised of 17 patients who were completely free from vascular disease. In Group *2* were 131 patients who had moderate evidence of vascular disease, such as calcified arteries alone or transitory retinal hemorrhages, transitory hypertension, and transitory albuminuria. Group *3* contained 58 patients who were incapacitated by their vascular lesions because of retinitis proliferans, nephritis, angina, or cerebral vascular accident.

The difference in the degree of control of diabetes in the three groups was striking and is shown in Table 1. Among the patients who were free from vascular lesions after twenty years of diabetes, only one in ten had ever had diabetic coma. One in five had hypercholesterolemia. Not one had a large liver, and only one in three had had extremely high levels of blood sugar. In comparison, those who were incapacitated by their vascular lesions showed an incidence of diabetic coma in two out of three cases, hypercholesterolemia in two out of three, enlarge-

TABLE 1

Relation of severity of diabetes to vascular complications

GROUP	NUMBER OF PATIENTS	PERCENTAGE OF PATIENTS WITH VARIOUS COMPLICATIONS			
		Coma	Hyperglycemia	Hypercholesterolemia	Hepatomegaly
Normal	17	10	35	20	0
Moderately affected	131	40	50	50	30
Incapacitated	58	60	55	60	40

ment of the liver in one out of two, and extreme degrees of hyperglycemia in more than one out of two. Thus, in this group of patients poor control of diabetes *did* parallel the frequency and the severity of the vascular lesions. I wish to re-emphasize here that this does not indicate that this is the inevitable result of diabetes, but that these complications occurred in individuals in whom the disease was severe and in whom the disease was uncontrolled. It indicates what can happen in diabetes.

RECOMMENDED REGIME

The following management is recommended and pursued in our clinic in order to avoid this result: controlled calories which may be based upon weight and age, height, age, or surface area. If the rule for weight and age is used, then our diets have been as follows: 100 calories per kilogram of body weight in infancy, 80 at the age of five, 60 at the age of ten, and 40 at the age of fifteen. When calories have been based upon height, the rule has been 35 calories per inch. If based upon age, 1200 calories are given at age one with 100 calories added for each year of age until the completion of growth and development. If surface area is the basis, the rule has been twice the theoretical basal metabolism calculated according to the Wetzel Grid. Instead of prescribing the ratios of carbohydrate, protein, and fat as selected by the normal child (50 per cent of the calories as carbohydrate, 15 per cent as protein, and 35 per cent as fat), we have favored a lower carbohydrate, higher protein diet, and our prescription has been: 40 per cent of the calories as carbohydrate, 20 per cent as protein, and 40 per cent as fat.

Insulin is used continuously from the day of recognition of the disease in the juvenile patient. Up to 1937, four doses of rapidly acting insulin were used daily. From 1937 to 1948 separate injections of crystalline and protamine zinc insulin were given before breakfast and since June, 1948 a single injection of the new NPH50 insulin in 24 hr. has been adequate.

These are the standards which we strive to attain: an excretion of sugar which will be less than 5 per cent of the carbohydrate intake, normal blood sugars before meals, freedom from ketone bodies, and normal blood cholesterols below 230 mg.

To improve the patient's attitude, the following is recommended: during infancy, management is accomplished with the least difficulty by means of the training of parents. The management of the child between the ages of one and ten should include, at the start of treatment, hospitalization for training of the patient and, more important, the training of the parents. Yearly refresher courses are essential. The diabetic summer camps during this age period provide a rest for parents and, in addition, training for the child. The teaching which is best suited to this age group is a question and answer period. The importance of accurate tests, diet, and exercise are all best emphasized by performance. These children should be under constant medical supervision, and they should really be seen as often as once a month. Self administration of insulin and diet is not recommended under the age of ten. Instead of prescribing the free diet for the diabetic child, we favor the prescription of a controlled diet for the rest of the family. After all, diabetes is a family disease.

Group handling for the adolescent cannot be overemphasized, and the service which the diabetic camp renders in this age group is great indeed. Contact with members of the next generation who have experienced the same doubts and difficulties is of great value. Parents and physicians can actually help this patient less than can a successful contemporary. The responsibility for self treatment is desirable in the second decade.

An ideal service for the young diabetic would be a mobile unit of dietitians, nurses, and psychiatric social workers to serve in the hospital, the office, and the home, for it is evident that the results of uncontrolled diabetes are devastating. Positive programs for the protection of eye, kidney, heart, and extremities in the diabetic patient have already been organized. These include such procedures as high-protein diets, correction of capillary fragility with drugs like rutin, and weight control, but not the least part of a preventive program is accurate chemical control of diabetes which can be accomplished only with the controlled regime.

Menu Planning for the Housewife

Shopping first and then planning meals allows housewives to take advantage of best buys in certain groups of foods which are comparable in nutritive value. Then, the homemakers can apply meal planning principles which enable them to create meals out of the particular foods they have found advantageous to buy. Such was the advice given by Dr. Velma Phillips, Dean, College of Home Economics, State College of Washington, Pullman, at a consumer interests session of the American Home Economics Association meeting in June in San Francisco.

Notes on the Use and Effects of Monosodium Glutamate[1]

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THERE are times in the military service when troops must subsist on a restricted diet, especially during war. Under these conditions, field tests have revealed that, in general, soldiers prefer to go hungry rather than eat food which is unacceptable to them. A great deal of effort was therefore expended in developing acceptable foods for troops so that enough nutriment would be consumed to keep them in good physical condition.

Before acceptable rations could become a reality, monotony and insipidity—the two characteristic weaknesses of limited rations—had to be eliminated. Early tests indicated that the flavor of certain ration items were improved when monosodium glutamate was added. Although this work looked promising, it was discontinued during the war because of the limited supplies of this chemical available. It was not until the cessation of hostilities that an adequate exploration of the potentialities of monosodium glutamate in Army rations could be undertaken. As a first step, a symposium sponsored by the Quartermaster Food and Container Institute for the Armed Forces and the Associates Food and Container Institute was held in Chicago (1). This symposium covered the history, production methods, uses, formulation in practice, chemical nature and relationships of this material and its pharmacology.

It is of interest to note that this product has been widely used by the Japanese in their Army rations. Dr. C. A. Fellers, in reporting his war experiences in the Pacific Theater of Operation, has stated (2), "One of the staples of the Jap soldier was canned fish products. They apparently will can any fish whatever. It was all very good, and for a long time we could not understand why. It was always packed with a sauce. What they were using was one of these hydrolyzed soy bean products. They used this gravy in all of their canned fish products, and they also used it in their very low quality beef. In Japan, the cow is used to cultivate the soil and is killed for beef when she grows old. Naturally, this beef is tough. They canned that for their Army and added this same sauce; it was cooked under pressure to make it soft. It has an excellent flavor of the same sort as these fish products. By the way, our own men liked these fish products very much. They didn't mind the old canned cow too much, either."

[1] Received for publication March 17, 1949.

GLUTAMATE IN FOOD

The active form, *l*-glutamic acid, is made commercially, and the monosodium salt of this form is the one which has the unique property of enhancing flavor when added to foods. According to Crocker (3), monosodium glutamate appears to be entirely without odor when pure, and its taste has all four components: sweetness, sourness, saltiness, and bitterness. He also reports that the meaty association formerly attributed to this substance was due to other components of protein decomposition present in the crude glutamates available.

The optimum proportion used in foods must be determined experimentally, but it will probably lie between 0.1 and 1.0 per cent of the total weight of the food as eaten. The results of experimentation incorporating monosodium glutamate into various foods and food products has effectively been summarized by Cairncross (4) as follows:

> Monosodium glutamate added in small amounts had a pronounced effect on the flavor of practically all foods to which it was added, without itself being noticeable. (Exceptions: It was very noticeable in certain fruits and dairy products.)
>
> The principal effect on food flavor was a balancing, blending, and rounding out of total flavor.
>
> Flavor appeal was frequently improved, most notably in the case of meats, sea foods, stews, soups, and chowders.
>
> Cooked vegetables were markedly improved by glutamate addition, but the following were highest on preference rating: mushrooms, sweet corn, asparagus, broccoli, green and Lima beans, spinach, cauliflower, Brussels sprouts, squash, parsnips, onions, and dehydrated cream style vegetable soups. In carrots and cauliflower, the natural flavor characteristics were intensified. This result suggests application of monsodium glutamate in protecting the flavor of foods held on steam tables.
>
> Fruit, fruit juices, sweet baked goods, some dairy products, and cooked cereals were not considered to be benefited by the use of monosodium glutamate.

It was noted that glutamate suppressed undesirable flavor factors in the following cases:

1. The sharpness in onion flavor.
2. Rawness in many vegetables and some meats.
3. The flavor of peel and earthiness in vegetables, particularly potatoes.
4. A volatile characteristic noted in boiled rice.
5. Bitter tastes in a few freshly opened canned vegetables.
6. A fishy note sometimes present in Lima beans.

Cairncross summarizes the role of monosodium glutamate in food flavoring as follows: "Glutamate accentuates sweet and salty tastes in food when they are present in less than optimal amounts. In some cases glutamate seems to suppress sourness and bitterness. Glutamate has more influence on fat-free foods than it has when fat is present." He concludes: "We believe that monosodium glutamate should be classified as a seasoning agent, since its action is more of the salt type than the condiment type. Because it can affect the balance of other seasonings, it should be added first. When used judiciously, it is not apparent in cooked foods, and its effect is not duplicated by any other seasoning agent. It can still give zest to a food after all of the recognized art has been applied."

Nair (5) points out two other factors to be considered in the addition of glutamate to foods: (a) the economics of the operation since glutamate is likely to be the most expensive seasoning added to the formula, and (b) possible changes in flavor which may develop in food under various storage conditions. Since the persistent quality of the glutamate flavor is retained indefinitely while other flavors may decrease or increase in strength on storage, the flavor of the food after prolonged storage may be notably different from that obtained initially when glutamate was added to the food.

The above work has demonstrated the many varied and interesting applications of monosodium glutamate to the food industry, and further investigations will in all likelihood lead to even more usages.

PHYSIOLOGIC EFFECT OF GLUTAMIC ACID

Glutamic acid has aroused equally as much if not greater interest in the medical field because of its use in various mental ailments. Glutamic acid is a 5 carbon dicarboxylic amino acid classed as dispensable for man in the sense that it does not need to be supplied in the dietary. It occurs as a constituent of all complete proteins and several important biologically active compounds, such as insulin, glutathione, pteroylglutamic (folic) acid, tumor tissue, tyrocidine and the drugs "Diopterin" and "Triopterin." The *l*-form is more completely and specifically utilized by the body than the *d*-form (6). It is an amino acid which can form glucose or glycogen in the body, and one which has lipotropic activity. Although the tolerance to the natural (*l*-glutamic acid) forms and racemic (*dl*-glutamic acid) forms for lower species, such as rodents, is high, intravenous administration of these forms in mixtures of synthetic amino acids causes a specific toxic effect evidenced by nausea and vomiting in dog and man (7). The glutamic acid in protein digests is also responsible for the toxic symptoms observed when parenteral infusion of the hydrolysates is too rapid.

Glutamic acid holds a unique position among the amino acids in that it is the only amino acid known to be metabolized by brain tissue slices (8). An enzyme present in the brain tissue converts the glutamic acid to glutamine by the addition of ammonia (9). This substance may be used by the brain tissue as a source of energy. Glutamic acid has also been linked with the enzyme system which synthesizes acetylcholine, a compound involved in nerve metabolism and transmission of nervous impulses (10).

The anti-convulsant property of glutamic acid may also be related to its role in brain metabolism and the functioning of the nervous system. Glutamic acid was first introduced for the treatment of epilepsy as a substitute for the unpleasant ketogenic diet, because of its acid-producing property (11).

When glutamic acid was fed to patients suffering with petit mal, urinary *p*H was significantly lowered, but no changes in the acid base balance of the blood was observed (12). It was found that not only did the frequency of the seizures decrease, but that there was an increased mental and physical alertness (13). The mental response was independent of the seizure response, both responses declining when glutamic acid therapy was discontinued. The grand mal type of epilepsy was not benefited by glutamic acid therapy. It is interesting to note that glutamic acid had no effects on chemically or electrically induced seizures in experimental animals (14, 15). At present, glutamic acid has been replaced by more effective drugs in the treatment of petit mal.

The effectiveness of glutamic acid in increasing the physical and mental alertness has also been demonstrated in other types of mental deficiencies not associated with epilepsy and also in normal animals (16, 17). Rats fed a normal diet plus glutamic acid exhibited greater speed in maze learning than those fed the normal diet alone (17). Similarly, rats receiving the glutamic acid were able to learn more complex mazes than those on the control diet alone (16). Recent reports, however, indicate that these findings could not be confirmed by other workers (18–20). Both the speed and the level of the complexity of the learning were similar for the rats fed the normal diet and for those fed the normal diet plus additional glutamic acid. A possible explanation offered by the authors for the discrepancy in results is the differences in strain of the animals used, the Sherman strain responding to the glutamic acid (20). Further work is, therefore, needed to elucidate the role of glutamic acid in learning.

Mentally-retarded patients, both children and

adults, showed significant increases in intelligence quotient as a result of glutamic acid therapy (21–23). When placebos were substituted for the glutamic acid tablets, the I.Q. declined and was again raised when the glutamic acid therapy was resumed. In these patients there was improvement in personality and verbal ability and performance. The evaluation of such studies depends on the validity and reliability of the intelligence measurements available. It is indicated by Pfeiffer (6) that "before a general program of glutamic acid therapy can be introduced for the mentally deficient individuals or the public at large, the answers to the following questions should be known: (a) Is the increase in I.Q. real or due to better application and cooperation during the test? (b) Are subjects with normal intelligence benefited by glutamic acid therapy? (c) Will nervous disorders be increased as indicated by the side actions of restlessness and insomnia? (d) What is the effect of large and continued daily dosage of glutamic acid on longevity? (e) Is the glutamate effect modified by the other amino acids in casein? (The recent work of Christensen *et al.* [13] indicates that individual amino acids compete with each other for concentration into body cells from body fluids.) (f) Are cancerous growths or cell rests matured by glutamic acid?"

On the basis of the effectiveness of glutamic acid in increasing learning ability in rats and raising the mental age of retarded patients, there has been much speculation on the possibility of increasing the intelligence of already normal persons. In this connection glutamic acid has been referred to as a "brain food" in some of the popular periodicals (24, 25). Although glutamic acid may some day be proved to have a role in producing mental giants, at present, its action is generally interpreted as resulting not in new intellectual tools but in improving existing intellectual facilities which have been dulled or damaged from the normal state by injury or disease or inhibited by emotional mechanisms (11).

In conclusion glutamic acid has been shown to have some effect in raising the intellectual and physical output of certain mentally retarded individuals. Its ability to increase the speed and level of complexity of learning by rats needs further elucidation before such a role can definitely be established. The establishment of the specificity of glutamic acid in performing these functions will take long and tedious research. The mechanism in which glutamic acid functions is still unknown, except that it is in some way involved in brain metabolism and intimately connected with the functioning of the nervous system. Whether the glutamic acid acts as a drug or as a result of the interaction with other amino acids or related compounds is also unsolved as yet. The work thus far has opened up new fields of research in that it has shown that brain function may be improved by biochemical means in addition to social and educational methods (11).

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Pioneer Dietitian in India

Barbara Stanley Pittenger, a dietitian, has recently returned from two years of pioneering in nutrition and dietetics in India. Mrs. Pittenger spent five months organizing the Department of Nutrition in the Government of India College of Nursing at Delhi, where she taught basic nutrition and was laboratory instructor. The school is one of the first of its kind in India, where the field of nutrition and dietetics is practically undeveloped.

The Government of India College of Nursing has a four-year course leading to a Bachelor of Science degree. Affiliated with the University of Delhi, the courses are taught in English and the curriculum is patterned after American-type colleges of nursing. It is in its third year and has an enrollment of forty-nine students plus a graduate class of fourteen. The students are well educated girls who come from all parts of India and Ceylon.

The dietetics laboratory was held in two rooms formerly a part of the army officers' barracks. Heating equipment consisted of small iron charcoal stoves, called *ungeeti*, which Mrs. Pittenger herself lighted each morning before classes.

Prior to her work in Delhi, Mrs. Pittenger spent fifteen months in Calcutta as Finance Officer and Secretary in the office of the American Friends Service Unit. In addition to the distribution of food and medical supplies in Pakistan, the Unit has loaned an expert in maternity and child welfare work to the local Red Cross.

Mrs. Pittenger's husband, Dr. Pettinger, was one of two members of the Unit who, with the assistance of volunteers, made up a medical team in the Punjab area during the disturbances and mass migrations resulting from the division of India. The medical team gave small pox vaccinations and cholera injections in refugee camps, as well as assisted in the purifying of wells and the distribution of milk to children. Later Dr. Pittenger was in charge of a ward in the Safdarjang Hospital, New Delhi, where he supervised the care of thirty patients and instructed interns on the ward.—*From a release by the American Friends Service Committee, Philadelphia.*

Chemical Conditioners in Bread

Bread has undoubtedly suffered an additional setback in national confidence during the past two years because of the discoveries that flour treated with nitrogen trichloride produces convulsions in dogs. After a quarter of a century of treatment with this chemical to condition the gluten in flour, its use is to be made illegal in the United States after August 1, 1949. In its place will be allowed other chemicals, such as benzoyl peroxide, alum, and chlorine dioxide.

The housewife may well ask why such compounds are allowed in her bread. The real answer is that the housewife has little to say about the matter, and few women even know that such chemicals are used in flour. The industries insist upon these compounds to serve in conditioning the gluten so that flour can be worked uniformly in modern baking machinery. Furthermore, many flours can be used that would present special problems if untreated.

The use of these compounds could be avoided largely by storage of flour for two or more weeks, but millers do not like to store flour. Such a procedure requires space, ties up working capital, and gives more time for injury by rodents.

It has been reported that vitamin C has been used for the conditioning of flour in Switzerland, but that its use adds substantially to the expense.

A century ago, alum was the chief chemical put into flour, and its use caused much concern. Copper sulphate was also used to a limited extent. At that time, these chemicals were put into flour because unscrupulous bakers could then use spoiled flours that had molded badly. A few bakers in the United States today refuse to use any flour that has been treated with chemical conditioners.—*From "What the Consumer Should Know about Bread" by Clive M. McCay in* Journal of Home Economics *41: 179 (April), 1949.*

New York State Nutrition Survey

III. A Study of One Week's Food Purchases of 135 Families[1]

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THE NEW York State dietary survey which was conducted between December 1 to 15, 1947, was a cooperative effort of many departments and agencies of New York State to collect information concerning the nutritional status and trends of the population. The first paper (1) reporting this study dealt with three-day dietary records of children; the second paper (1) considered a one-day food intake of adults. This report is concerned with the analysis of seven-day food purchase records obtained from 135 families

SELECTION OF THE SAMPLE

The families participating in the study were living on restricted incomes and were selected from four areas within the state. Fifty-five families were from New York City, 10 from a small village in upstate New York, 24 from a student veterans' housing project at Syracuse University, and 46 from a similar veterans' housing project at Cornell University. No particular income level was sought. The non-student veteran families had been visited by public health nurses who were acquainted with the economic status of the families. The student veteran families were all receiving financial help from the "G. I. Bill of Rights" and in some cases had additional supplementary incomes. There was no uniformity in family size. The non-veteran families varied in size from two to fourteen persons. Student veterans families generally consisted of two adults and one or two children.

METHODS

A record of all food purchased, food gifts, and all home-processed food used during a seven-day period was obtained. Public health nurses from the Community Service Society collected the data in New York City. Nutritionists from the State Health Department helped with the study in the upstate village, and graduate home economics students from Cornell University and Syracuse University supervised the student veteran groups. The persons responsible for collecting the data were instructed to obtain accurate records of the quantity and cost of all food purchased for a consecutive seven-day period and the imputed value of the food gifts and home-processed foods used during that period. The workers visited the homes each day of the study. They were asked to refrain from offering any nutritional advice or criticism which might cause the housewife to alter her usual purchase pattern. Information was acquired concerning the occupation of the principal wage earner and other members of the family, the total weekly take-home pay, the food and nutritional education of the homemaker, and the age and sex of each member of the household. The data also included the number of meals eaten from the home food supply by each member of the family, guests or boarders, and the number of meals eaten away from home.

The data were calculated by the following procedures:

(a) Determining family type, expenditure units, and nutritional units by the method described in *Family Food Consumption* of the United States Department of Agriculture (2).

(b) Recording of the amounts of food purchased and their classifications, i.e., eggs, milk (including cheese), fats, meat, flour, sugars, potatoes, fresh vegetables, canned vegetables, dried vegetables,

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frozen vegetables, fresh fruit, canned fruit, dried fruit, and frozen fruit.

(c) Recording the money value of the food according to food groups, such as eggs, milk (including cheese), fats, meat, grains, sugars, vegetables, fruits, and miscellaneous items.

(d) Calculating the nutritional value of the food as indicated on the record in terms of nutrients for which the National Research Council has established Recommended Dietary Allowances. This is reported according to nutritional units and by percentage of the 1945 Recommended Dietary Allowances (3). The figures used in computing the nutrients in the foods listed were derived from three tables of food composition (4–6).

In this paper the report will be limited to a discussion of the computed nutritional values based upon the National Research Council's recommended allowances, the cost per meal per expenditure unit, and the adequacy of the diet. The data for each group, because of the geographical, educational, and economic differences of the groups, have been reported separately.

The tables showing the nutrients of the food are reported in the following way: the average percentage of adequacy of each group of families; the percentage of families of each group that had diet lists of 100 per cent or more adequacy; and those that were deficient by more than 20 per cent.

RESULTS

The family size, weekly take-home pay, and the percentage of the pay spent for food are shown in Table 1. Approximately one-third to one-half of the income was spent for food. The highest percentage spent for food was by families in the large upstate village and the lowest was found in the Cornell University group. The weekly take-home pay per expenditure unit and the meal cost per expenditure unit are also shown in Table 1. The upstate village families had the smallest weekly pay per expenditure unit and the lowest average meal cost. Cornell families had the highest pay and highest per meal cost when based upon expenditure units.

Calories

The calories and protein estimated from the grocery lists are shown in Table 2. All groups but the one at Syracuse presented purchase lists that averaged approximately 100 per cent or more of the recommended number of calories. Syracuse averaged 86 per cent of this amount. Over 40 per cent of the families of each group met the recommended caloric allowance. The percentage from the upstate village was the highest with 60 per cent meeting the standard. From 10 to 38 per cent of the lists were deficient in calories by more than 20 per cent.

Protein

The average percentage of adequacy of protein consumption was well above the amount recommended by the National Research Council. More than 57 per cent of the families of each group met the standard. The smallest percentage was from New York City and the highest from Cornell Univer-

TABLE 1

Family income and food expenditures in four New York State communities

AREA	NUMBER OF FAMILIES IN STUDY	SIZE OF FAMILY		WEEKLY TAKE-HOME PAY		PROPORTION OF TAKE-HOME PAY SPENT FOR FOOD		AVERAGE WEEKLY TAKE-HOME PAY PER EXPENDITURE UNIT	AVERAGE MEAL COST PER EXPENDITURE UNIT
		Average	Range	Average	Range	Average	Range		
		persons	*persons*			%	%		
New York City	55	4.3	2– 8	$47.94	$20.00–77.00	46	21–103	$14.04	$0.314
Upstate New York village	10	7.9	5–14	60.00	20.48–61.25	54	26–84	9.23	0.256
Syracuse University	24	3.08	3– 4	33.00	22.50–56.10	43	16–111	13.42	0.271
Cornell University	46	2.9	2– 4	36.00	22.50–85.00	36	14–84	18.02	0.390

TABLE 2

Adequacy of food purchases with respect to calories, protein, and minerals

AREA*	CALORIES			PROTEIN			CALCIUM			IRON		
	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%
	%	%	%	%	%	%	%	%	%	%	%	%
New York City	98	46	38	110	57	14	98	46	29	144	82	9
Upstate New York village	100	60	10	115	70	10	80	40	50	134	60	10
Syracuse University	86	42	29	119	67	12	111	58	17	97	58	17
Cornell University	124	46	28	136	89	0	124	78	6	127	78	6

* For number of families, see Table 1.

sity. Of the Cornell students none were getting less than 80 per cent of the recommended protein. Among the other groups, between 10 and 14 per cent were receiving these amounts.

Minerals

The calcium and iron content estimated from the dietary lists are shown in Table 2.

Calcium. The average percentage of adequacy was approximately 100 in three of the groups, although the families in the upstate village obtained 80 per cent of the recommended amount. The percentage of families getting recommended amounts of calcium was highest in the two student veteran groups and lowest in the village families. Half of the village families and about a third of the New York City families had grocery lists containing 80 per cent or less of the recommended calcium allowance; 17 and 6 per cent of the Syracuse and Cornell families respectively had similar lists.

Iron. All groups had approximately 100 per cent or more of the suggested iron intake. Approximately 80 per cent of the New York City and Cornell student families and 60 per cent of the other two groups met the recommendations. The overall percentage of families getting less than 20 per cent of this amount ranged from 6 to 17 per cent.

Vitamins

The vitamin content of the foods listed are shown in Table 3.

Vitamin A (including carotene). All four groups showed averages of vitamin A consumption well above the recommended allowances. The averages were all more than 175 per cent of the recommendation. Seventy-five per cent of the Syracuse families met the standard, and the other groups had percentages of families ranging from 80 to 91 per cent meeting the allowances. Four per cent of the Cornell University group reported a deficiency of more than 20 per cent; among Syracuse and New York City families approximately 10 per cent were deficient by that amount; and about 20 per cent of the village families had lists calculated to be deficient by more than 20 per cent.

All four groups reported high averages of the three members of the vitamin B group for which the National Research Council has established recommendations.

Thiamine. Sixty per cent or more of all the families observed had grocery orders containing recommended amounts of thiamine. Cornell University students had 91 per cent of the families procuring this amount. Families deficient by more than 20 per cent were found in about 10 per cent of the upstate village and the Cornell University families, and about a fifth of the Syracuse and New York City families were getting less than 80 per cent of the standard.

Riboflavin. All groups presented food purchases containing, on the average, over 100 per cent of the suggested amount. About 90 per cent of the Cornell families had recommended amounts of riboflavin and about 60 per cent of the other families had that amount. Diets deficient by more than 20 per cent were found in 6 per cent of the Cornell families, in 11 per cent of the New York City families, and in approximately 20 per cent of the families from the village and Syracuse University families.

Niacin. The average percentage of adequacy of niacin for each group was well over the recommended amount. Two-thirds to three-fourths of the families met the standard. About 6 per cent of the families from New York City and from Cornell University were purchasing food deficient by more than 20 per cent. A fifth of the village and Syracuse families were deficient by that amount.

Ascorbic Acid. While all the groups averaged well over the recommended allowances, there was wide variation in the individual family grocery list. Fifty to 58 per cent of the village families and the Syra-

TABLE 3

Adequacy of food purchases with respect to vitamins

AREA*	VITAMIN A			THIAMINE			RIBOFLAVIN			NIACIN			ASCORBIC ACID		
	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%	Average adequacy	Families 100% or more adequate	Families deficient by more than 20%
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
New York City	223	84	11	124	67	22	122	60	11	148	76	7	166	87	7
Upstate New York village	177	80	20	134	60	10	118	60	20	136	70	20	113	50	40
Syracuse University	199	75	12	90	63	17	119	58	17	126	67	21	136	58	25
Cornell University	190	91	4	121	91	9	144	89	6	140	78	6	168	80	11

* For number of families, see Table 1.

cuse families received adequate amounts of this vitamin. Eighty per cent or more of the other families met the standard. Approximately 10 per cent of the Cornell families and New York City families were deficient in this vitamin by more than 20 per cent. Two-fifths and one-fourth of the village and Syracuse families respectively were deficient by that percentage.

Expenditures for Food

A comparison of the money spent upon meals and the nutritional adequacy of the grocery list is shown in Table 4. The relationship is based upon the expenditure unit and meal cost. When the cost per meal per expenditure unit was less than $0.199, no families bought groceries containing recommended amounts of nutrients, and all were deficient by more than 20 per cent in one to nine nutrients. When the expenditure was increased to $0.200 to $0.299, 12 per cent of the diets met the standards and 26 per cent were between 80 and 100 per cent of the recommended allowance. An expenditure of $0.300 to $0.399 per meal correlated with adequate dietary lists in 29 per cent of the families; and 39 per cent of the dietaries ranged between 80 and 100 per cent of the recommended allowances. When between $0.400 and $0.499 cents were spent per meal, the percentage of lists correlating with the standard was high, 82 per cent, and the remainder, 18 per cent, had between 80 and 100 per cent of the recommended amounts of nutrients. All families spending $0.500 or more met all the known recommendations. This picture seems approximately the same for the specific group as well as for the total 135 families. From

TABLE 4

Comparison of meal cost per unit expenditure and nutritional adequacy

DEGREE OF ADEQUACY	MEAL COST PER EXPENDITURE UNIT																						TOTAL
	$0.100–$0.199					$0.200–$0.299					$0.300–$0.399					$0.400–$0.499				$0.500 and over			
	New York City	Upstate New York village	Syracuse veterans	Cornell veterans	Total	New York City	Upstate New York village	Syracuse veterans	Cornell veterans	Total	New York City	Upstate New York village	Syracuse veterans	Cornell veterans	Total	New York City	Syracuse veterans	Cornell veterans	Total	New York City	Cornell veterans	Total	
Number of dietaries 100% or more adequate in all 9 nutrients						2		2	2	6	4	2		9	15	4	2	8	14	4	1	5	40
Number of dietaries between 80 to 100% adequate						3		3	1	13	7	1	5	6	19	2		1	3				29
Number of dietaries deficient in 1 to 3 nutrients by more than 20%	3		2		5	9	6	6	9	24	9		1	7	17								52
Number of dietaries deficient in 4 to 6 nutrients by more than 20%	2		1	1	4	5		1	1	7													11
Number of dietaries deficient in 7 or 8 nutrients by more than 20%		1			1																		1
Number of dietaries deficient in all 9 nutrients by more than 20%	1		1		2																		2
Total	6	1	4	1	12	19	6	12	13	50	20	3	6	22	51	6	2	9	17	4	1	5	135
Average expenditure units	4.47	13.27	2.59	2.46		3.97	6.10	2.5	2.66		3.52	6.8	2.45	2.43		2.94	2.43	2.15		3.15	1.92		

this table it would appear that 30 per cent of the families were buying weekly groceries that meet all the recommended allowances, 22 per cent were within 80 to 100 per cent of the goal, 38 per cent were deficient by more than 20 per cent in one to three nutrients, 8 per cent in four to six nutrients, and 2 per cent deficient by more than 20 per cent in seven or more nutrients.

DISCUSSION

A study of food purchases may be criticized on several scores. The sample may be biased, since women who will participate in a project which involves keeping accurate accounts and disclosing information concerning economic status are extremely cooperative, interested in knowing how they are feeding their families, and may not necessarily be representative of the homemakers in their particular neighborhood. Other limitations are that the data do not show what the individual family members are eating, losses of nutrients in food preparation, kitchen waste, or quantity of food given to pets. Although the workers were not to offer suggestions or criticism to the housewives, the presence of the workers may have caused the homemaker to alter her purchase pattern and she may have bought more expensive foods to show the worker how well she was feeding her family. A food inventory was not required. It was felt that better cooperation from the house wife would be obtained if the information was restricted to the grocery list, food gifts, and home processed foods used during the week. Furthermore, the storage facilities in the homes chosen, such as urban apartments, and veterans' housing units, were such that: (a) most of the food was purchased and used on a weekly or daily basis, and (b) food left over from the previous week and used during the study period and the food left over at the end of the study period would compensate for each other.

There were significant differences in the four groups when the data were tabulated for family nutritional adequacy. The Cornell student veteran group who were also spending the most per meal and expenditure unit averaged the highest percentage of adequacy when based upon the National Research Council standards. Forty-four per cent of their lists indicated 100 per cent or more adequacy in all nine nutrients, and 17 per cent had no nutrient below 80 per cent of the recommended allowance. Twenty-eight per cent of the families had less than 80 per cent of the recommended calories, and only 4 to 11 per cent of the families were deficient in other nutrients by more than 20 per cent.

New York City families had the next best grocery lists. A fourth met the National Research Council allowances, a fifth of the lists were between 80 and 100 per cent of the allowances. Thirty-eight per cent of the families were deficient by more than 20 per cent in calories, 29 per cent in calcium, 22 per cent in thiamine, 14 per cent in protein, 11 per cent in riboflavin and vitamin A, and 17 per cent in ascorbic acid.

Groceries bought by 17 per cent of the Syracuse students contained 100 per cent or more of the standard and a third had no nutrient below 80 per cent of the recommended allowance. Twenty-nine per cent were deficient by more than 20 per cent in calories, 25 per cent in ascorbic acid, 20 per cent in ascorbic acid, 20 per cent in niacin, 17 per cent in calcium, iron, thiamine, and riboflavin, and 12 per cent in protein and vitamin A.

The upstate village was the smallest sample—only ten families. These were the largest families and the meal cost per expenditure unit was the smallest. A fifth of the families met the recommended allowances, one family had no nutrient lower than 80 per cent of the allowances. Forty per cent of the families were deficient by more than 20 per cent in ascorbic acid, 29 per cent in calories, 20 per cent in vitamin A, riboflavin, and niacin, and 10 per cent in protein and thiamine.

In the relation of meal cost to expenditure unit, it was found that all families spending less than $0.200 per meal per expenditure unit had purchase records deficient by more than 20 per cent in one to nine nutrients. When the meal cost was $0.400 to $0.499 the grocery lists indicated 100 per cent in adequacy or not less than 20 per cent deficient in any nutrient. Adequacy was indicated by all grocery lists when the meal cost per unit was $0.500 or more.

The study showed that in comparison with the Recommended Dietary Allowances a caloric deficiency was the most frequent, followed by calcium, thiamine, ascorbic acid, riboflavin, iron, vitamin A, and protein. However, it has been repeatedly stated that obesity is a frequent manifestation of malnutrition in the United States, and hence it is most unlikely that there was actually a caloric deficiency in terms of health. General observations by the individuals collecting the data used in this study support this conclusion.

These figures have been based upon the 1945 Recommended Allowances of the National Research Council. The allowances were based upon the needs of the moderately active man and woman. In the 1948 revised Recommended Dietary Allowances, the changes would result in a lowering of the calories for the woman of 4 per cent, a 20 per cent increase in the calcium allowance for men and women, and a reduction of the riboflavin by 10 per cent for males and 6 per cent for females. If the family contained a boy between the ages of sixteen and twenty, the niacin allowance has been lowered 5 per cent. The other recommended allowances for children are the same. This would mean that in the data of this study, the only nutrient which is changed appreciably is calcium.

SUMMARY

Seven-day food purchase records from 65 low-income families and 70 student veteran families living in university housing projects were analyzed. Using the National Research Council's Recommended Dietary Allowances as a standard, the nutrients most frequently found to be less than recommended were calories, calcium, thiamine, riboflavin, and ascorbic acid.

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Cause of Red Color in Well Cooked Meat

At the Huey P. Long Charity Hospital, Pineville, Louisiana, Jean B. Ruby, Dietitian, has found that some meat retains its red color even after having been cooked well done. To learn the cause of this phenomenon, she wrote the Department of Agriculture. The reply which she received, based on work of A. M. Gaddis of the staff of the Agricultural Research Administration, is of interest, and is quoted below with permission.

"Red color in well cooked meat is generally caused by color fixation of the myoglobin or the addition of a heat-stable red dye prior to cooking. Sulphite and nitrite are capable of fixing the color of meat. The presence of nitrite may be due to the ingestion by the cattle of nitrate of sodium or potassium which may be found in some water or vegetation, especially in semi-arid regions. The nitrate is converted to nitrite by the action of certain bacteria while the food is in the paunch. Upon entering the blood stream, the nitrite combines with the hemoglobin of the blood and the myoglobin of the muscle tissue to form a red color that withstands cooking.

"After slaughter the nitrate, if no nitrite or nitrate has been added, may be due to the presence of nitrous oxide in the air, possibly because of close proximity of the meat to preparations containing nitrite. The sulphite, if not added, may be due to the presence of sulphur dioxide gas in the air, possibly because of a leak in the refrigerating system.

"A dye, usually the coal tar food dye Poncean 3-R, is sometimes added to maintain the color of freshly ground meat, and this color will persist through the cooking process. There is also a possibility that seasoning ingredients used in cooking may contain traces of color-fixing substances.

"Whatever may be the direct cause of the color, it is certain that at some time during its history, the meat has been exposed to a color-fixing agent. Once this has occurred, there is nothing that can be done to remove the color. The only step that can be taken to prevent purchasing meat having this peculiarity is to obtain carcasses raised in areas which do not have nitrate-bearing water and that are not exposed to color-fixing agents while in storage."

Food Habits of College Students

In an address to the American Home Economics Association on "Organization of Food Service and Problems of Changing Food Habits," Christine Ricker pointed out that candlelight can be counted on to calm the tempo of a college dining hall, and that certain menu items, such as celery and melba toast or artichokes, may slow the all-too-rapid progress of a residence meal. Miss Ricker, who is Director, University Dining Halls, Stanford University, noted that the problem of changing food habits at the college level is difficult, but suggested that new foods be introduced by combining them on the menu with tried favorites. Her experience has also shown that "plate service is far safer in this regard than family style, where a bowl may be passed around the table without a single taker."

Effect of Large-Scale Methods of Preparation on the Vitamin Content of Food

V. Spinach[1]

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GARDEN-FRESH spinach contains considerable amounts of carotene and ascorbic acid and fair amounts of some of the B vitamins. Its perishable nature and low and variable vitamin retentions indicated a necessity to determine the vitamin content of spinach in the stage in which it usually reaches the consumer and to determine the retention of its vitamin content when prepared by large-scale, Army-style cooking methods, as compared with other methods of cooking.

[1] The work described in this paper was initiated under a contract recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the Pentagon Post Restaurant Council.

[2] Acknowledgment is made to the following for their help in organizing this study and for their counsel and guidance so generously given in planning and carrying out this project: Lt. Col. Harvey K. Allen and Maj. James D. Ward, former Pentagon Post Restaurant Officers; Capt. Paul B. Morgan, present Pentagon Post Restaurant Officer; Dr. Robert S. Harris, former Consultant in Nutrition to the Secretary of War and Chairman of the Working Committee; Col. John B. Youmans and Maj. William F. Ashe, Office of the Surgeon General; Col. Paul P. Logan, Director, Food and Equipment Research, National Restaurant Association; Jane C. Ebbs, Office of the Quartermaster General; Drs. Paul L. Pavcek and Lester Teply, National Research Council, members of the Working Committee; James K. Switzer, former Manager of the Pentagon Post Restaurant, and Mrs. E. Renshaw, former member of the Pentagon Post Restaurant; J. I. Finnegan and other present members of the Pentagon Post Restaurant; J. B. DeWitt, Dr. E. M. Nelson, and Dr. C. D. Tolle, Food and Drug Administration; Dr. Gertrude M. Cox, University of North Carolina; Dr. Esther L. Batchelder and Sybil Smith, Department of Agriculture; Dr. J. H. Roe, George Washington University; Dr. Faith Fenton, Cornell University; Dr. Floyd S. Daft, National Institute of Health; Cmdr. Clive M. McCay, Naval Medical Research Institute; and Lura Mae Odland, National Research Council.

[3] The Pentagon Nutrition Laboratory functions under the auspices of the Quartermaster Food and Container Institute for the Armed Forces and the Pentagon Post Restaurant Council.

REVIEW OF THE LITERATURE

Published data on the vitamin content of raw and cooked spinach have been reviewed, compiled, and tabulated (1–4). The following values given in the Tables of Food Composition (5) have been considered typical for 100 gm. of raw spinach: carotene, 5.64 mg.[4]; thiamine, 120 mcg.; riboflavin, 240 mcg.; niacin, 700 mcg.; and ascorbic acid, 59 mg.

The ascorbic acid content of raw spinach was found to vary much more than the content of other vitamins. It ranged from as low as 5 mg. per 100 gm. in one case (held five days at 4°C.) to as high as 118 mg. per 100 gm. in another instance (garden-fresh) (2). Ascorbic acid losses during one day's storage ranged from 7 per cent when the spinach was held at 4°C. to 50 per cent when held at room temperature. After five days at 4°C., only 14 per cent of the ascorbic acid remained (2).

Except for carotene, where little or no loss occurred during cooking (1, 6), the vitamin retention in spinach varied with the cooking method used. Boiling spinach in the usual way yielded the following retentions: thiamine, 47 to 70 per cent (1, 7, 8); riboflavin, 52 per cent (1); niacin, 63 to 74 per cent (9); and ascorbic acid, 24 to 32 per cent (1, 4, 10, 11). Steaming (or boiling in a minimum amount of water) yielded the following retentions: thiamine, 73 to 84 per cent (1, 10); riboflavin, 75 to 89 per cent (1, 10); and ascorbic acid, 30 to 62 per cent (1, 4, 10, 11). No data for retention of niacin are available.

EXPERIMENTAL PROCEDURE

The general plan for this study was similar to that of previous work on potatoes, carrots, and cabbage (12–14). Comparisons were made of the effects on

[4] Converted to milligrams, assuming that one I.U. equals 0.6 mg. carotene.

spinach of the following cooking methods: boiling in the usual amount of water (the large-scale, Army-style method of using sufficient water to cover the spinach), boiling in a minimum amount of water (the water clinging to the washed leaves), and steaming. For each cooking method determinations were made on a sufficient number of replicate batches to furnish data suitable for statistical analysis.

Determinations were made of batch weights, dry matter, and hydrogen ion concentrations. Assays for carotene, ascorbic acid, thiamine, riboflavin, and niacin in the raw spinach were also made as well as determinations of the solid and liquid portions of the cooked spinach and of the palatability of the cooked product.

Colorado Curly and Curly Savoy, Ohio Curly Leaf, Adirondack Curly, and Pennsylvania Straight Leaf were the varieties of spinach used. The spinach arrived at the laboratory one to ten days after harvest and was stored at 35°F. from one to nine days until processed.

Methods of Preparation

About 35 lb. raw spinach were trimmed, mixed thoroughly, and sampled immediately; a portion of the raw spinach was stored at 35°F. for 3 hr., and the remainder was prepared in the following ways:

Boiled in the usual amount of water. Ten lb. spinach were put in a 13-gal. stockpot, covered with about 35 lb. boiling water, and cooked on top of a gas range until done. This required a cooking period of 10 min. from the time the water returned to the boiling point.

Boiled and held. About 2 lb. of the boiled and drained spinach were placed in a stainless steel tray and held over boiling water for 1 hr. to simulate steam table conditions.

Boiled in a minimum amount of water. Ten lb. spinach were washed, drained well, placed in a 13-gal. stockpot, and cooked without the addition of water until done. This required a cooking period of 15 min., from the appearance of steam. At the end of that time the spinach was completely immersed in its own juice. Frequent stirring was necessary to prevent scorching.

Steamed. Five lb. spinach were placed in a tinned steamer basket set over a tray in a free-venting, commercial steamer, operating at atmospheric pressure (212°F.) and cooked until done (15 min.). Considerable liquid, derived from the spinach leaves and mixed with condensate from the steam, collected in the tray.

Sampling

Preliminary sampling showed that there was great variation in ascorbic acid content between different plants and between the inner and outer leaves. In an analysis of nine representative plants from the same batch, the ascorbic acid content was found to range from 19 to 38 mg. per 100 gm. The variations in the carotene content between leaves and stems was even greater (4.5 mg. per 100 gm. leaves as against 0.3 mg. per 100 gm. stems). The ascorbic acid content showed a less marked variation. The spinach used for the raw samples was not cut, thus minimizing ascorbic acid losses due to cutting and insuring the presence of leaf blades and stems in proportionate amounts in the sample. These great varia-

TABLE 1

The vitamin content of spinach, raw and cooked by large-scale methods

DESCRIPTION OF SAMPLES	BATCH WEIGHT*	DRY MATTER*	*p*H†	CAROTENE*	THIAMINE*	RIBOFLAVIN*	NIACIN‡	ASCORBIC ACID*		
								Reduced	Dehydro	Reduced and dehydro
	units	%		*mg./100 gm.*	*mcg./100 gm.*	*mcg./100 gm.*	*mcg./100 gm.*	*mg./100 gm*	*mg./100 gm.*	*mg./100 gm.*
Raw										
Average	100	7.9	6.3	3.5	82	184	500 ⁂	18.7	2.8	21.5
Range		5.2–10.0	6.0–6.8	2.6–4.7	65–109	146–252	(no range)	2.0–37.3	1.4–6.0	5.0–40.6
Boiled in usual amount of water										
Drained spinach	63	7.4	7.3	4.9	17	57	140¶	1.7	1.0	2.7
Cooking water	302	0.8	7.0	<0.1††	13	53	103¶	1.2	0.6	1.8
Boiled, drained, and held	59	8.0	7.3	5.2	17	61	142¶	1.1	0.9	2.0
Boiled in minimum amout of water										
Drained spinach	59	9.5	6.9	5.6¶	50 ⁂	135 ⁂	380 ⁂	5.6	1.8	7.4
Cooking water	79	2.4	6.7	<0.1**	56¶	123¶	341¶	5.7	1.9	7.6
Steamed										
Drained spinach	77	9.1	7.1	4.5 ⁂	66	179	470¶	10.3	2.8	13.1
Cooking water	32 ⁂	—	—	<0.2††	52 ⁂	140 ⁂	356¶	—	—	—

* Values are averages of results from at least ten replicate batches unless otherwise indicated. Batch weights were determined at pertinent stages in preparation as described previously (12).

† The *p*H values given are medians, not averages.

‡ Determinations made on composite samples.

⁂ Nine replicates.

¶ Eight replicates.

** One sample.

†† Estimated.

tions also required that large samples (75 to 250 gm.) be used, representing sufficient plants and leaves to eliminate the differences between plants and between different leaves of the same plant. The samples were prepared for analysis by slurrying with appropriate stabilizing solutions, as described in previous papers (12–14) and were then stored at 35°F.

To obtain a more representative raw sample and to compensate for any possible losses of ascorbic acid during handling prior to cooking, the raw spinach was sampled for ascorbic acid at both the beginning and end of the preparation period.

Methods of Analysis

Carotene was measured by the spectrophotometric magnesium oxide adsorption method (15). Total (reduced and dehydro forms) and dehydroascorbic acid were determined by the 2,4-dinitrophenylhydrazine method (16). Reduced ascorbic acid was calculated by difference. Thiamine was determined by the thiochrome method (17). Riboflavin and niacin were determined microbiologically (18, 19). Palatability was judged by the laboratory staff.

RESULTS AND DISCUSSION

The data on vitamin and dry matter content, percentage retentions, percentage batch weights, and hydrogen ion concentrations of the spinach at all stages of preparation are summarized in Tables 1 and 2. Retention values were calculated by expressing vitamin content of the cooked product as a percentage of the vitamin content of the original raw material, as described in detail in a previous publication (12).

In Table 3 are presented the differences in retention between the raw and cooked spinach and between the spinach cooked by different methods, and tests of their significance at the 95 per cent level using Student's "t" method, as described previously (12).

The raw spinach used in these experiments contained much smaller amounts of ascorbic acid (an average of 18.7 mg. per 100 gm.) and slightly smaller amounts of the other vitamins than the average values reported in the Tables of Food Composition (5). Values in these tables are based upon garden-fresh as well as stored spinach. The spinach used

TABLE 2

Percentage retention of vitamin content of spinach, raw and cooked by large-scale methods*

DESCRIPTION OF SAMPLES	DRY MATTER	CAROTENE RETENTION	THIAMINE RETENTION	RIBOFLAVIN RETENTION	NIACIN RETENTION	ASCORBIC ACID RETENTION	
						Reduced	Reduced and dehydro
	units	%	%	%	%	%	%
Raw	100	100	100	100	100	100	100
Boiled in usual amount of water							
Drained spinach							
Average	61	85	13	19	17	4	7
Range	44–76	65–102	8–18	15–25		0–10	0–14
Cooking water							
Average	38	<3	56	87	76	17	24
Range	22–54		36–76	69–103		0–49	0–51
Boiled, drained, and held							
Average	61	90	12	19	16	2	5
Range	41–79	77–122	7–15	15–25		0–8	0–12
Boiled in minimum amount of water							
Drained spinach							
Average	74	88	34	42	42	14	17
Range	65–87	71–104	23–39	34–53		0–21	6–26
Cooking water							
Average	24	<1	48	50	51	19	22
Range	12–31		42–58	41–59		0–2	1–42
Steamed						8	
Drained spinach							
Average	90	98	61	74	72	39	46
Range	63–108	75–121	42–80	62–89		14–74	28–72
Cooking water							
Average		<1	21	25	23	—	—
Range			11–30	12–34			

* Retention of vitamins was calculated using the vitamin content of raw spinach as 100 per cent and using data from which Table 1 was compiled.

TABLE 3

Differences in percentage retention of vitamins between stages in the large-scale preparation of spinach and a test of their significance*

STAGES COMPARED	CAROTENE		THIAMINE		RIBOFLAVIN		ASCORBIC ACID			
							Reduced		Reduced and dehydro	
	Difference†	Least significant difference‡	Difference†	Least significant difference‡	Difference†	Least significant difference‡	Difference†	Least significant difference‡	Difference†	Least significant difference‡
Raw *and* boiled, usual amount of water	*−15*	6	*−87*	2	*−81*	2	*−96*	2	*−93*	2
Raw *and* boiled, usual amount of water, plus cooking water	—	—	*−31*	10	5	9	*−79*	11	*−69*	11
Raw *and* boiled, usual amount of water, then held	*−10*	9	*−88*	2	*−81*	2	*−98*	1	*−95*	2
Raw *and* boiled, minimum amount of water	*−12*	8	*−66*	5	*−58*	5	*−86*	3	*−83*	3
Raw *and* boiled, minimum amount of water, plus cooking water	—	—	*−18*	11	−8	9	*−67*	10	*−61*	9
Raw *and* steamed	−2	12	*−39*	8	*−26*	6	*−61*	10	*−54*	7
Raw *and* steamed plus condensed water	—	—	*−18*	9	−1	9	—	—	—	—
Steamed *and* boiled, minimum amount of water	*−10*	8	*−27*	7	*−32*	5	*−25*	6	*−29*	5
Steamed *and* boiled, usual amount of water	*−13*	10	*−48*	8	*−55*	5	*−35*	7	*−39*	6
Boiled, minimum amount of water *and* boiled, usual amount of water	−3	9	*−21*	6	*−23*	4	*−10*	6	*−10*	1
Boiled, usual amount of water *and* boiled, usual amount of water, then held	5	3	*−1*	1	0	0	*−2*	1	*−2*	1

* Differences were derived from retention values given in Table 2.

† Differences as great or greater than the value calculated as the least significant difference are considered significant. These are italicized. A negative sign is used when the vitamin content of the first stage in the comparison was greater than that of the second stage; no sign is used when the reverse was true.

‡ At the 95 per cent level; calculated by Student's "t" method described previously (12).

in the tests reported here was stored both before and after purchase and was thus more typical of the spinach used by the Army and other large-scale installations. Variety, season, and geographic origin also influence the vitamin content of vegetables (2).

The method of cooking was found to be an important factor in the retention of water-soluble vitamins and total dry matter in spinach. The steamed product ranked first in retention of vitamins, dry matter, and total weight as well as in palatability and attractiveness. Retentions of vitamins and dry matter and palatability of spinach boiled in a minimum amount of water were superior to that boiled in the usual amount of water. This method is not practical, however, for large-scale cooking since it requires constant attention and frequent stirring to prevent scorching. Almost all the differences in vitamin retentions between the different methods of cooking were statistically significant, as seen in Table 3. Holding the boiled spinach over steam for 1 hr. had no significant effects on carotene or the B vitamins. The ascorbic acid content of the boiled spinach was too low to warrant any conclusions regarding the effect of holding upon this nutrient.

Carotene losses due to cooking were small; 85 and 88 per cent were retained in the spinach boiled in the usual way and in minimum amounts of water respectively and 98 per cent in the steamed spinach. Only insignificant amounts of carotene were in the liquor.

Thiamine losses in the boiled spinach were due more to leaching than to actual destruction. The distribution of the vitamin between the drained spinach and the liquid was related to the amount of water used in cooking. Spinach boiled in the usual amount of water, boiled in a minimum amount of water, and steamed, retained in the drained portion 13, 34, and 61 per cent respectively of the thiamine, while 56, 48, and 21 per cent respectively was recovered from the liquids. Thus 31 per cent of the thiamine was destroyed in the spinach boiled in the usual amount of water, while 18 per cent was destroyed by each of the other two cooking methods.

Riboflavin and niacin losses were due entirely to leaching. Here, too, there was a significant relationship between the cooking method and the distribution of the vitamins. Drained spinach boiled in the usual amount of water, boiled in a minimum amount of water, and steamed retained 19, 42, and 74 per

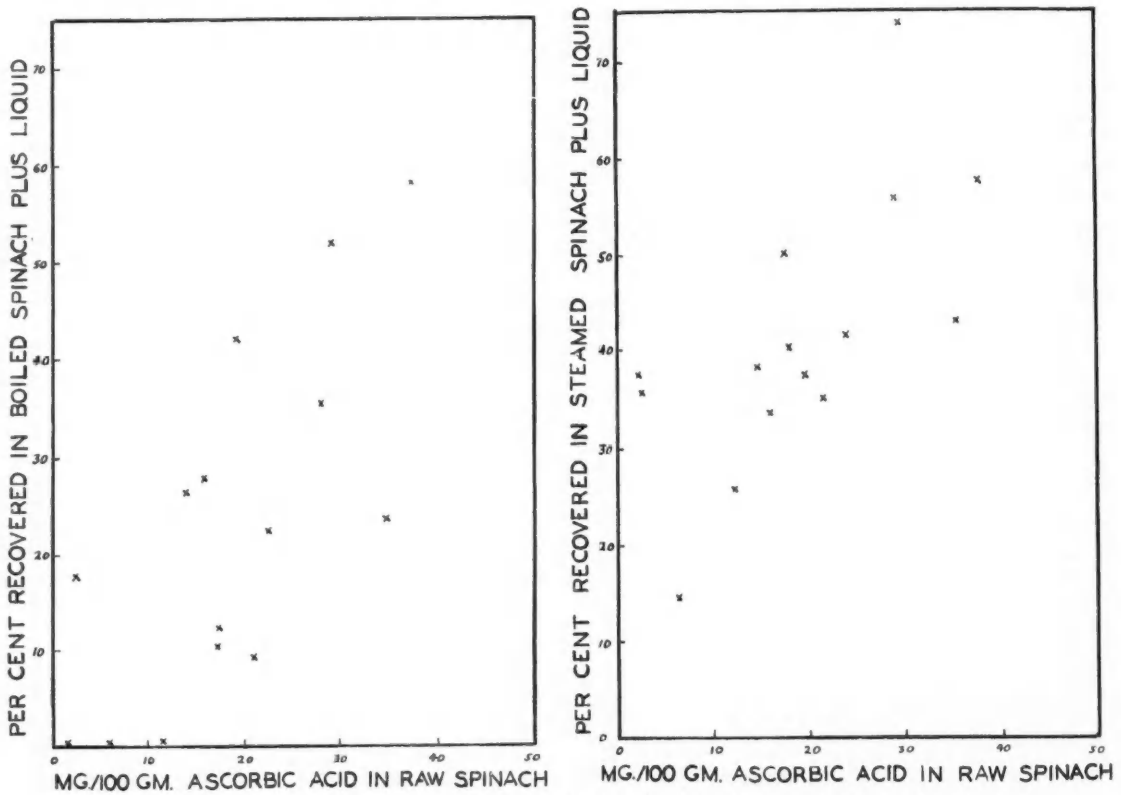
PER CENT RECOVERED IN BOILED SPINACH PLUS LIQUID
MG./100 GM. ASCORBIC ACID IN RAW SPINACH
PER CENT RECOVERED IN STEAMED SPINACH PLUS LIQUID
MG./100 GM. ASCORBIC ACID IN RAW SPINACH

FIG. 1. *Relationship between ascorbic acid content of raw spinach and percentage retention in cooking.*

cent respectively of the riboflavin, while 87, 50, and 25 per cent respectively was recovered in the liquid. Corresponding retentions of niacin were: 17, 42, and 72 per cent in the drained portions and 76, 51, and 23 per cent in the liquids.

Ascorbic acid losses were marked in all of the samples of cooked spinach. The raw spinach contained an average of 18.7 mg. ascorbic acid (reduced form) per 100 gm., of which the spinach cooked in the usual and minimum amounts of water retained only 4 and 14 per cent respectively in the drained portion, with an additional 17 and 19 per cent recovered from the cooking liquids. Destruction was thus in excess of 65 per cent in both cases. Steamed spinach retained an average of 39 per cent of its ascorbic acid in the drained portion. The slight losses of dehydroascorbic acid in the cooked spinach were not significant, particularly since the raw spinach contained an average of less than 3 mg. per 100 gm. The large percentage losses of ascorbic acid were probably due partially to the relatively large amounts of water used in the case of spinach cooked by the usual Army method, and partially to the low ascorbic acid content of the raw spinach. It was found that those batches of spinach having more initial ascorbic acid tended to lose smaller percentages in cooking (Fig. 1) but had higher absolute losses; for example, seven batches of spinach which contained an average of 27.6 mg. of ascorbic acid per 100 gm. of the raw vegetable, lost (by destruction) during the process of boiling 17.6 mg. ascorbic acid per 100 gm. of the original raw material—a loss of 64 per cent—whereas eight other batches of spinach which contained an average of 10.9 mg. ascorbic acid per 100 gm. of the raw vegetable lost, when equally treated, 9.4 mg. of ascorbic acid per 100 gm. of the original raw material—a loss of 86 per cent. Detailed data in this connection will be presented in another paper (20). Similar observations have been reported by Clayton (21) who experimented with tomatoes, and by Poole (22) who worked with cabbage.

SUMMARY

A study was made of the vitamin content, percentage vitamin retention, and palatability of spinach boiled in the usual amount of water used in large-scale, Army-style cooking; boiled in a minimum amount of water; and steamed.

Retention values were calculated by expressing vitamin content of the cooked product as a percentage of the vitamin content of the original raw material (19). Losses in cooking by each method and differences in vitamin retention between the various cooking methods were examined statistically.

Raw spinach contained per 100 gm.: carotene, 3.5 mg. (2.6 to 4.7); thiamine, 82 mcg. (65 to 109); riboflavin, 184 mcg. (146 to 252); niacin, 500 mcg.; dry matter, 7.9 gm. (5.2 to 10.0); ascorbic acid, 18.7 mg. (2.0 to 37.3); and dehydroascorbic acid, 2.8 mg. (1.4 to 6.0).

Retentions in the drained spinach boiled in the usual amount of water, boiled in a minimum amount of water, and steamed were as follows: carotene, 85, 88, and 98 per cent respectively; thiamine, 13, 34, and 61 per cent; riboflavin, 19, 24, and 74 per cent; niacin, 17, 42, and 72 per cent; dry matter, 61, 74, and 90 per cent; and ascorbic acid, 4, 14, and 39 per cent. Those batches of spinach having a higher initial ascorbic acid content tended to have higher absolute losses but smaller percentage losses in the cooked product. All the losses, except for carotene in the steamed spinach, were statistically significant.

Losses of ascorbic acid were caused chiefly by destruction. Thiamine was lost both by destruction and leaching. Riboflavin and niacin were lost almost entirely by leaching. Total recoveries of the vitamins, i.e., the percentage retained in drained spinach plus the percentage recovered from the cooking liquor were as follows: for that boiled in the usual amount of water, boiled in a minimum amount of water, and steamed: thiamine, 69, 82, and 82 per cent respectively; riboflavin, 106, 92, and 99 per cent; niacin, 93, 93, and 95 per cent; and ascorbic acid, 21 and 33 per cent (the liquid from the steamed spinach was not assayed for ascorbic acid).

The steamed spinach ranked first in vitamin and dry matter retentions and palatability, and the spinach boiled in a minimum amount of water was also superior to that boiled in the usual amount of water.

All the differences in vitamin retentions between the various cooking methods were statistically significant with the exception of the difference in carotene retention in the two kinds of boiled spinach.

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During the diabetes detection drive sponsored by the American Diabetes Association last winter, 145,960 patients were contacted, including 37,243 children.

Editorial

LULU G. GRAVES

Lulu Grace Graves, first President and Honorary President of the American Dietetic Association, died July 31, 1949 in Berkeley, California. One of the great pioneers of the dietetic profession and a friend and inspiration to countless dietitians is gone, but her name, her works, her influence carry on.

As dietitians, we can readily understand the need that brought ninety-eight dietitians from all parts of this country and Canada to that first meeting of the American Dietetic Association in Cleveland in 1917 to talk over problems of dietary management. The invitations for that meeting were written by hand by Miss Graves and Lenna F. Cooper. That was a great step forward, but Miss Graves' story goes back much farther.

Born in Fairbury, Nebraska, her first professional years were spent as a teacher of primary grades in Fairbury and Plymouth, Nebraska. "I remember her then," writes one of her pupils now grown to fame herself. "She was austere, dignified in stiff white blouse and high collar. But we liked her; she was 'our' teacher."

From Nebraska Miss Graves went to the University of Chicago to study home economics. After her work there she served as Associate Professor of Home Economics at Iowa State College. Then began her work as a hospital dietitian. In later years, she liked to tell that in her first hospital position she started at no salary, but with the promise that she would be paid when she had proved to the superintendent that she could more than justify the cost of her hire by money saved in good management of the food supply. She did just that. From Chicago, Miss Graves went to Lakeside Hospital in Cleveland, where in 1917 she wrote *Modern Dietetics* and our Association was organized and Miss Graves elected its first President.

Professor of Home Economics at Cornell University was her next position, and from there she went to Mount Sinai Hospital, New York City, where she installed the central service in the Private Pavilion—one of the first of its kind.

Those of us who knew her there like to think back on the evenings in her suite in the old West Wing . . . the Sunday night suppers when conversation flowed freely . . . her season tickets for the opera, which she shared with students and assistants. We remember, too, her demand for accuracy, good work, and pride in our profession.

Leaving Mount Sinai, Miss Graves established an office as Consultant Dietitian in New York City. Later she wrote *Foods in Health and Disease* and co-authored the much-used and popular *Dictionary of Foods and Nutrition*. In addition to her other activities she served as Advisory Editor of *Practical Home Economics* and as Chairman of the Dietetics Section of the American Hospital Association.

The honor which gave her the greatest pride and joy was that of receiving the Marjorie Hulsizer Copher Award at the Philadelphia meeting of the American Dietetic Association in 1947. She never for a moment lost interest, enthusiasm, or pride in the Association. In a letter dated April 11, she wrote, "If I am still here I shall want very much to go to Denver." We will miss seeing you there, Miss Graves. We will miss your friendly interest and your counsel. The Association which you helped to found and which has grown so tremendously in size and professional stature will revere your name and will be ever grateful to you for the leading role that you played in its early history.—*Helen Robertson, Home Economics Editor, Cleveland Plain Dealer.*

THE PROPOSED CONSTITUTION

Within a few days you will receive the proposed Constitution upon which you will be asked to vote in October at the Denver meeting. The members of the Constitution Committee have evolved an organization which they believe will be accepted by the membership as a real step forward in the progress of the Association.

They have carefully studied all suggestions received for reorganization and all objections voiced against the present organization. They have made every effort to select from these suggestions and criticisms the ones that seemed to fit best into the picture as a whole in developing a well functioning organization that meets the legal requirements as set up by the statutes of the State of Illinois under which the Association is incorporated.

Undoubtedly, with the shifting of responsibilities as set up in the proposed Constitution, flaws will be found. These can be adjusted after the new organization has been tried for a year or two. It is hoped that you will agree that the plan is worth a trial.

A brief discussion of the major changes is here presented, so that you may have the thinking of the Committee in regard to them.

For several years the Association has been functioning with an Executive Board which is the administrative body, and the House of Delegates which is responsible for state association activities.

The Executive Board has been composed of the five officers elected by the membership and four section chairmen appointed by the President. Last year the Executive Board and the Reorganization Committee realized that it was not democratic to have the Executive Board weighted by so many appointees. Therefore, the chart presented at the annual meeting in Boston indicated two boards instead of one, with a division of functions: (a) the Executive Board composed of the five elected officers to be responsible for administrative functions, and (b) a Board of Directors composed of the five elected officers and the four section chairmen, to carry the responsibility of the program of professional work.

Upon further study, this proposed arrangement appeared to be unsatisfactory. Therefore, the Committee is suggesting a new form of organization. Chart 1 shows the personnel of the various groups involved in the Association activities, and Chart 2 shows the functions of each. Both charts show the coordination between the various groups.

The proposed plan involves three units of organization:

I. The Executive Board, the administrative body of the Association, is to be composed of the five officers of the Association elected by the entire membership.

II. The House of Delegates is to be composed of: (a) the delegates—elected by the state associations according to their number of members, (b) six delegates-at-large elected by the membership, (c) the elected officers of the Association, and (d) the four section chairmen. The functions of the House as given on the accompanying chart of functions are to: (a) study matters of professional interest, (b) initiate professional activities, (c) implement the program of professional work of the four sections, (d) advise on policies, and (e) advise and assist state associations on administration and organization. For two years the House of Delegates has been operating with a temporary Council composed of seven delegates. It is proposed to authorize the continuance of this Council.

III. In order to coordinate the work of the Association, a Coordinating Body, which as this goes to press is still unnamed, is proposed as the third unit of the organization. This body will be composed of the five elected officers of the Association, the members of the Council of the House of Delegates, and the four section chairmen. This coordinating body will: (a) develop policies, (b) develop the program of professional work of the sections, and (c) coordinate the activities of the Association. Thus there will be an Executive Board, a Coordinating Body, and the House of Delegates with its Council.

This plan should strengthen and allow for effective implementation of the program of professional work of our Association. The House of Delegates will carry a large proportion of the responsibility for the professional activities of the Association and much of the work will be done through the state associations. (See Article V for details.)

OFFICERS

In setting up the proposed organization it has been necessary to change some of the offices and the duties of several officers.

You will note that the office of *Vice-President* has been replaced by *Speaker of the House*. The Speaker will also serve as chairman of the Council of the House. The names of nominees for this office will be submitted by the House of Delegates to the Nominating Committee of the Association and the two names will appear on the national slate of officers to be elected by the membership. Since the Speaker of the House (formerly the Vice-President) will be a member of the Executive Board and will take the chair in the absence of the President, it is the inherent right of every member to vote on this nominee. However, because she will be presiding officer of the House and the Council, it is desirable that she be nominated by the House of Delegates from that body, rather than as formerly by the Nominating Committee of the Association. She will be elected a year in advance, so she will have had a year of preparation as Speaker-Elect. (See Article VI, Sections 4 and 5.)

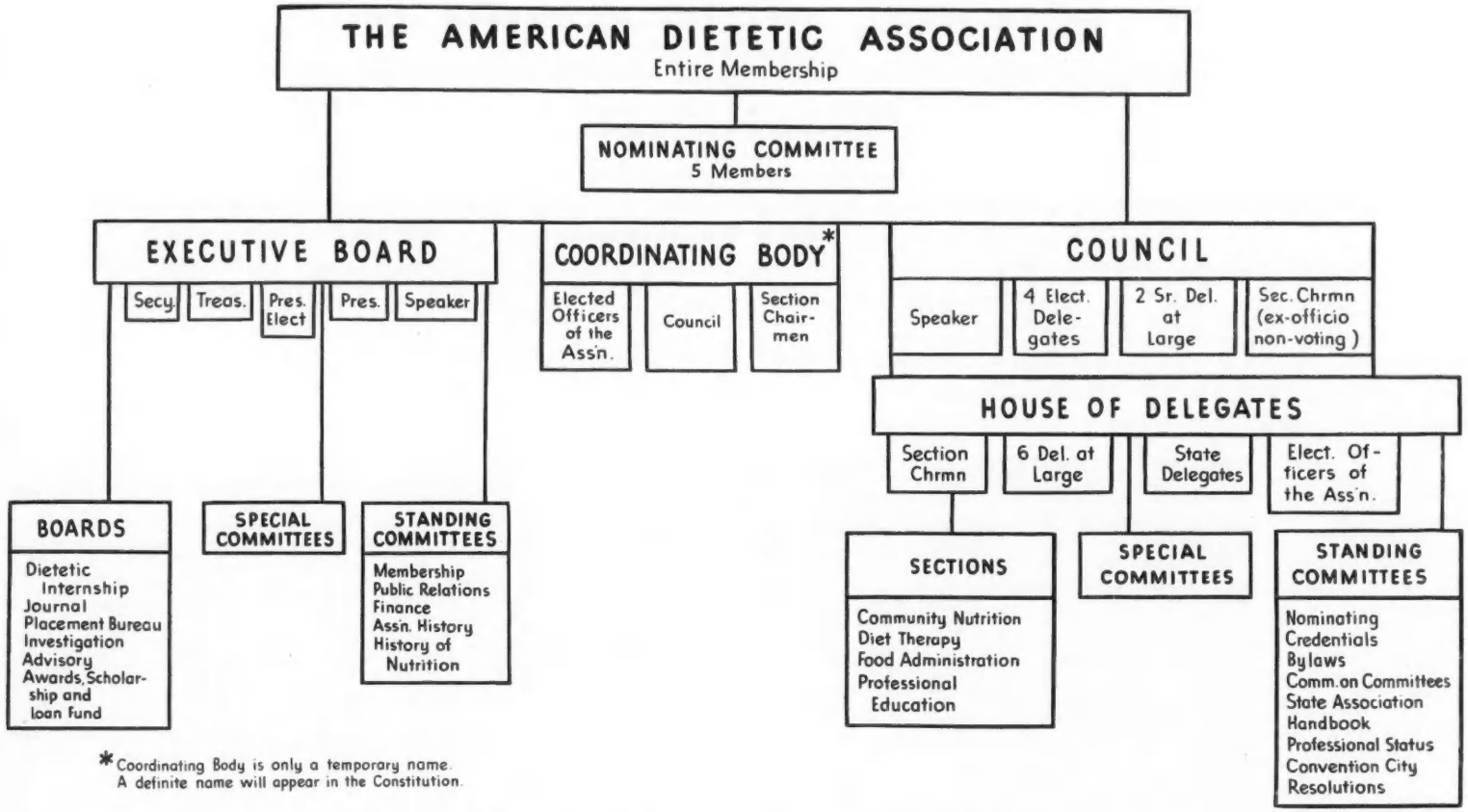

CHART 1. Showing personnel and lines of communication of various branches of the Association.

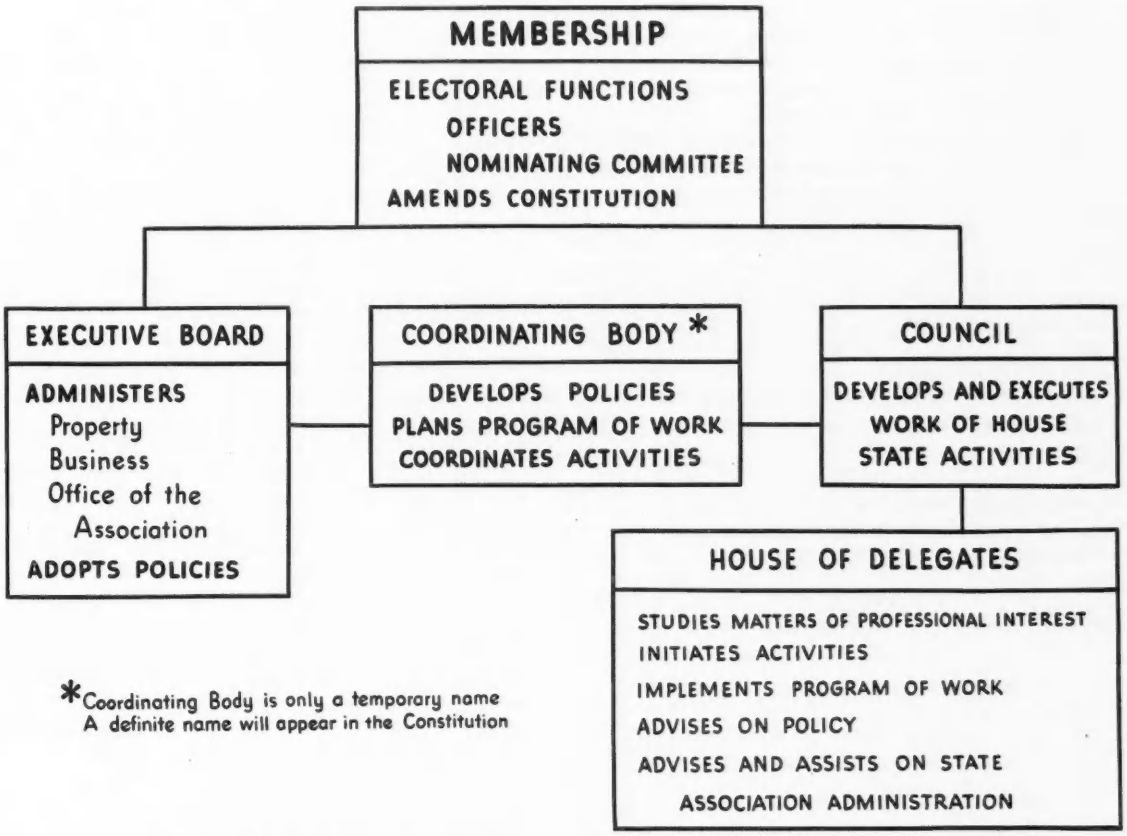

CHART 2. Showing functions of various branches of the Association.

You will note that the Secretary of the House of Delegates is also Secretary of the Council of the House and will be elected by the Council from their members. This officer will not be the Secretary of the Association, as formerly. (Article V, Section 4, Council of the House of Delegates.)

The President of the Association will preside at meetings of the Executive Board and Coordinating Body and also at meetings of the membership; she no longer will serve as presiding officer of the House of Delegates. This plan of organization will divide the former work of the President, since the Speaker of the House will take over the functions of presiding officer of the House of Delegates and of the Council, and she will make appointments as specified in the By-Laws of the House of Delegates. (Article VI, Sections 2 and 4.)

Provision is made in the proposed Constitution that the President-Elect shall appoint the Section Chairmen subject to the approval of the Council. It also requires that this be done far in advance of the annual meeting so that plans may be prepared and presented for the coming year at the mid-year meeting of the Coordinating Body and plans actually be completed, ready to move forward at the time of the annual meeting. This makes it possible for delegates to take back from convention to their states, the plans for professional activities for the year. (Article VI, Section 3.)

AFFILIATED STATE ASSOCIATIONS

A provision has been inserted that state associations making application for affiliation will be investigated by and recommended for affiliation by the Council of the House. This formerly was entirely an Executive Board responsibility.

As a means of securing better selection of delegates and to make the House of Delegates a more "workable" body, it is proposed to decrease the number of delegates from the present number to a little more than half of the present delegates. The expense to the state for sending delegates will be lessened so that more of the expenses can be paid for those who attend, if the states so wish.

In order to give more stability and continuity to the functions of the House, it is proposed to change the term of office of delegates from two to three years.

The requirements for delegates are definitely stated and the recommendations relative to the use of proxies are outlined.

A definite provision has been made regarding alternates. The haphazard appointment of alternate delegates, as has been too frequently done in the past, has resulted in unsatisfactory representation and in confusion as a consequence of checking of qualifications and credentials of alternates at the opening of the meeting of the House of Delegates. Also, each year the opening of the House has been delayed by this confusion. Such late appointments have meant that alternates have had no opportunity to inform themselves or be properly instructed by their state associations. (For details on above five paragraphs, see Article IV, Section 2.)

DELEGATES-AT-LARGE

You may also note that the six delegates-at-large are to be elected by the membership and will be named on the ballot by the Association Nominating Committee, two elected each year for a term of three years. Formerly we used the term delegates-at-large for those who represented the members in the unaffiliated states. We no longer need those. Instead, we have provided for six delegates-at-large to represent the entire Association. It is expected that they will be seasoned members of the Association who have been active over a period of years, familiar with Association activities and policies. Their presence in the House should make possible a more long range view by bringing a knowledge of past activities and thus give stability to the House. It is hoped that eventually former members of the House will be elected as delegates-at-large. (Article VII, Section 1, and Article VIII, Section 3, Nominating Committee.)

BOARDS AND COMMITTEES

Space does not permit a discussion of all the changes in boards and committees. The following are of special importance:

Dietetic Internship Board. The former Approval Committee has been changed to the Dietetic Internship Board. It has been increased to ten members—a chairman and three sub-committees of three members each, one on Hospital, another on Administrative, and a third on Clinic Internships. Each member is to be appointed for a three-year term, on a rotating basis.

Placement Bureau Board. This Board has been changed from seven to nine members, and will represent geographical areas and the various fields of activity of our membership.

Finance Committee. It is specified that the two senior delegates-at-large who are also on the Council and the Coordinating Body shall be on the Finance Committee.

Nominating Committee. As an outcome of the discussions at the Membership Meeting in Boston last year, it is proposed that the Nominating Committee be selected on a geographical distribution plan. The names of two nominees are to be presented from each of five geographical regions, divided as equally as possible according to numbers of members. The immediate Past-President will be a consulting member without vote.

(Other boards and committees are outlined in Article VIII, Sections 2 and 3.)

MEETINGS

There will be an annual meeting of the membership and of the House of Delegates.

The Coordinating Body and the Council of the House of Delegates will hold semi-annual meetings, one at the time of the annual meeting of the Membership and House of Delegates, the other in midyear. Provision is made that these midyear meetings will be held on consecutive days at the time of the midyear meeting of the Executive Board so that expenses will be reduced to a minimum.

The Executive Board will hold other meetings if necessary. (Article XII.)

The Committee hopes that you will read the proposed Constitution carefully and be prepared to give your opinion in the discussions at Denver.—*Lillian S. Coover, Helen A. Hunscher, Helen S. Mitchell, Wintress D. Murray, Alice Smith, Evelyn E. Smith, Helen E. Walsh, Elizabeth Perry, Anna Boller Beach, Chairman, Constitution Committee.*

CITY OF MANSIONS

In the days of the Gold Rush, while Denver was an outpost, it became world-famous for its great mansions, built by men who made their fortunes overnight. These mansions were copied from famous ancient architecture and included Spanish castles and French chateaux. Practically all of the materials were imported. Later, when stones from the mountains, and other materials, could be produced here, they were used for outside structures, but interior woods and materials were still imported.

Many of the mansions with their gorgeous interior finishes, and in some cases pieces of the original period furniture, still can be found in perfect condition. Among these, is the home of David H. Moffat, the great pioneer railroad builder. The mansion is noted especially for its $25,000 Tiffany window which lights the stair landing. John F. Campion, a promoter of gold and silver mines in Nevada and Colorado, built a thirty-two-room structure with gold plated doorknobs and many other gorgeous features—this was known as a "treasure house" and is now Denver's Red Cross Building.

One of the oldest and most pretentious homes is that of Hal Sayre who surveyed the early mining claims. This old mansion is pure Moorish, with its interior arches and other features—an exact duplicate of the old Alhambra Castle in Spain.

Then there is the old J. J. Brown residence, known far and wide as the "House of Lions," because at one time there were ten marble lions decorating gateways and pillars at the entrance. Brown was the discoverer of the "Little Jonny," one of the richest gold mines in the world, which turned out millions of dollars in its day. His wife was the "Unsinkable Mrs. Brown," who became world-famous through saving many passengers of the old Titanic and steering them to safety in a life boat.

One of the first of the great mansions built on the empty prairie, then on the outskirts of Denver, was the forty-room Kountz house with its matching stables. This house had walls 16 in. thick, with heavy double floors, and was the first soundproof building of its time. Charles Kountz, the builder, was Denver's pioneer banker, having started with a gold dust exchange in the rear of a drug store and later starting banks in many parts of the country, including New York City.

The John Good home was copied from a great castle in Alsace, France, and was one of the great sights for newcomers to the West. It took two years to decorate this house on the inside. The ceilings were carved in feminine, beautifully draped figurines. A gold "G" was imprinted on each piece of furniture imported from France. This great castle was occupied by the John Good family until a few years ago and the rich and majestic interior finish remains exactly as it was when originally built.

The men who built these many mansions were our empire builders, cutting roads and railroads through the West, developing the wealth of mines and ranges, and building one of the great cities—Denver. This was the city cut from the wilderness, and these mansions are monuments to the builders of an empire. A tour of these historic mansions is being arranged for convention visitors.

The old history of Colorado and its empire builders has been recently reviewed in the *Rocky Mountain Empire Magazine* of the Denver *Post* through a series of articles on "Denver's Historic Mansions," by Edith Eudora Kohl, Denver *Post* staff.—*Dolores S. Redus, St. Luke's Hospital, Denver; assisted by Edith Eudora Kohl, Denver Post staff.*

THE A.D.A. STAFF

Some time ago, The Executive Board recognized the need for closer working relationships between the state associations and the national Association. In order to assist in carrying out this program, Margaret L. Ross has recently joined the Association staff.

Miss Ross is highly qualified to assume her new responsibilities, having been an active worker for some time in the Michigan Dietetic Association. Although her special interest in administration is evidenced in the fact that she served as state chairman of Food Administration, a variety of professional interests have appeared in her career. She was especially active in volunteer nutrition teaching in the local Red Cross Chapter during the war. Miss Ross completed a Master of Arts degree at Teachers College, Columbia University, in early 1949. For the past ten years she has been employed at Hurley Hospital, Flint, Michigan, first as administrative and therapeutic assistant and later as chief dietitian. Previous to that time, she was assistant dietitian at Albany Hospital, Albany, New York, and at Monmouth Memorial Hospital, Long Branch, New Jersey. Miss Ross also served as an assistant therapeutic dietitian at the University Hospital, Ann Arbor, for a brief time, this following a year as a dietetic intern at the University Hospital. Miss Ross received a Bachelor of Science and Education degree in her native state of Massachusetts at State Teachers College, Framingham.

In her new position Miss Ross will assist the A.D.A. section chairmen in the development of the work program of the sections in the state associations. She will also serve as a consultant to state associations on organization, programs of work, and special problems as they arise. These responsibilities will be closely related to the program of work of the House of Delegates, and Miss Ross will coordinate these various activities. She will visit state and local associations as her schedule permits. She will also maintain the records of the Association's library. Miss Ross has already started her work in the Association office, and she looks forward to meeting many of the members of the Association personally at the convention in Denver.

We believe that members of the Association will also be interested to know that Mrs. Margene Wagstaff, Publications Assistant, has returned to the Association office on a half-time basis, following a short leave. On April 8, Richard Ferguson, weight 7 lb. 9 oz., was born to Mrs. Wagstaff and her husband, Reverend Cecil F. Wagstaff.

For more than a year Mrs. Wagstaff worked on A.D.A public relations and vocational guidance activities when she was in the office as a full-time staff member. Her experience in these fields continues to be of great value to the Association.

Convention Program

The Tentative Program for the Thirty-Second Annual Meeting of the American Dietetic Association, to be held in Denver, October 10-14, will be found on pages 788, 790, and 792 of this issue of the JOURNAL.

Current Comment

DIETARY TREATMENT OF EDEMA IN AN AFRICAN BOYS' BOARDING SCHOOL[1]

ALICE K. STRANGWAY[2]

Nutritionist, Chissamba Hospital, Nova Sintra, Angola, Africa

At the Chissamba mission station in Angola, Africa, the hospital staff is responsible for the health of the students in the boarding schools. A dietary study of the boys' boarding school was undertaken in November, 1946, because edema and other symptoms developed which appeared to be due to dietary deficiencies. This report describes the symptoms and the beneficial results of dietary treatment.

It is recognized by workers in nutrition that diets of African natives are deficient in many essentials. These deficiencies vary in different parts of Africa. In Angola, cornmeal with the germ and bran layers removed forms the bulk of the diet. Dried beans are eaten several times a week and, although green leaves such as squash or manioc are used frequently, they are usually overcooked. Meat and fish are seldom eaten, and milk and eggs almost never. Fruit and vegetables are scarce in African villages. On the whole, the diet is low in fats, some vitamins and minerals, and especially low in protein of animal origin. Edema, which we now consider to be of dietary origin, is frequently seen in African patients in Chissamba Hospital. In Angola, this disease is called by the African name of "ocilenda" which means swollen body.

While the diet in the boys' boarding school had been poor for many years and each year a few students had developed edema (ocilenda), in 1946, the situation was aggravated by additional factors. One was the high cost of food with no corresponding increase in the budget of the boarding department. This necessitated either a reduction in the quality of food given or a reduction in the number of boys admitted. Since these boys came from African families of high intelligence, there was an urgent demand on the part of the parents for the education of their children, and the boarding school staff in cooperation with the African leaders decided to reduce the quality of the diet and not the number of students. As a result, 250 boys ranging in age from eleven to nineteen years were admitted.

Another unfavorable condition which could not be foreseen was the failure of the irrigation which brought disaster to the gardens where cabbage was grown for consumption by the students. In addition, dried fish, became almost unavailable, and the price of meat rose to such an extent that it was prohibitive to buy except on rare occasions. All of these factors, plus the fact that before entering the school the boys had lived on inadequate diets in their own homes, combined to produce severe symptoms of malnutrition in a large group.

Several months after admission to the school 166 of the 250 boys were unable to attend classes. Medical examinations were made by the physician in charge of the hospital, Dr. W. E. Strangway. All of the 166 had severe stomach pains and diarrhea and complained of inability to eat the food provided. Many became very thin, and some presented the appearance of famine patients. Many complained of severe pains in the bones and joints. Several were unable to walk.

Edema began to appear and each day for about two weeks new cases developed until twenty-one boys in all were edematous. One of these had generalized swelling with heavy albumin in his urine. Seven had severe edema of the face, feet, and legs, while thirteen showed edema of the feet and legs only. Three had moderate albuminuria. Hemoglobin varied from 45 to 80 per cent.

DIETARY TREATMENT

Dietary treatment only was followed in all of these cases. In Tables 1 and 2 are shown the foods used and the calculated values of the diets. In calculating the dietary values, Tables of Representative Values of Foods Commonly Used in Tropical Countries (1) were used, since these tables were compiled from analyses made of African foods. Standards for comparison were the Recommended Dietary Allowances of the National Research Council (2).

Diet 1

Diet 1 was the regular diet used in the boarding

[1] Received for publication February 24, 1949.

[2] The author wishes to acknowledge with appreciation the advices received and the helpful coöperation of Dr. W. E. Strangway as well as the assistance given by the European and African nursing staffs.

TABLE 1

Comparison of regular diets with therapeutic diets used to correct malnutrition and edema

FOOD	DIET *1* (regular diet)	DIET *2* (to correct malnutrition)	DIET *3* (to treat edema)
	gm./week	*gm./week*	*gm./week*
Cracked corn (bran removed)	1974	1974	1974
Cornmeal (whole corn)	2632	2632	2632
Fish, dried	100	400*	400*
Cabbage, leaf	150†	450	450
Beans, dried	300	*	*
Cowpeas, dried	450	*	*
Palm oil	84	84	84
Liver (beef)			225
Goat's meat			250
Rabbit meat			50
Eggs			700
Whole cow's milk			1400
Skim cow's milk			700
Sesame oil			105
Wheat bran			300
Cabbage, leaf, or citrus fruit			800

* When the students were in good health again, 200 gm. beans and cowpeas per week were added to the diet, and the fish was reduced to 250 gm.

† From May to August, 450 gm. were given; from August to November, 150 gm.

school from May until November when symptoms developed. The quantity of protein according to Recommended Dietary Allowances (2) was adequate, but the quality was biologically poor. Only 6 per cent of the protein was from animal sources, and there was little variation in the cereals and legumes used, corn being the major food. From calculations made using Tables of Representative Values of Foods Commonly Used in Tropical Countries (1) and Recommended Dietary Allowances (2), it was found that the diet also showed some vitamin and mineral deficiencies. Riboflavin was calculated to be only one-half of the recommended amount, while calcium was one-sixth and ascorbic acid one-ninth of the amounts recommended for boys of the age group thirteen to fifteen. Thiamine, vitamin A, and iron were calculated to be sufficient, while niacin was very slightly low. It should be noted here that meal made from whole corn was used in the boarding school, whereas in African villages cornmeal with the germ and bran layers removed is used. Total calories were low. No milk, butter, or eggs and few leafy vegetables or fruits were included in the diet. Meat was given rarely and then in very small quantities. From May until August, 450 gm. leaf cabbage were given per boy per week. In August this was reduced to 150 gm. Symptoms developed in November.

Diet 2

Diet *2* was given to all of the students as treatment, but was supplemented as outlined under Diet *3* for those with edema. It was essentially the same as Diet *1* but was improved with respect to the quality of protein, since it supplied 26 per cent of protein calories from animal sources. It increased the ascorbic acid content from one-ninth to one-third of the recommended amount but left calcium, riboflavin, and total calories practically unchanged.

TABLE 2

Comparison of calculated daily dietary values (1) of Diets 1, 2, and 3 with Recommended Dietary Allowances (2)

DIET	CALORIES	PROTEIN		CALCIUM	RIBOFLAVIN	ASCORBIC ACID
		Total	From animal sources			
	gm.	*gm.*	*%*	*gm.*	*mg.*	*mg.*
Diet *1*	2728	96.4	6	0.190	0.99	10.5
Diet *2*	2501	89.9	26	0.170	1.10	32.0
Diet *3*	3151	126.9	47	0.761	2.97	98.6
Recommended Dietary Allowances for boys 13 to 15 years	3200	85		1.40	2.00	90.0

Diet 3

Diet *3* was planned especially for the twenty-one students with edema and was given only to these students. It consisted of Diet *2* with the addition of a supplement which increased all deficient minerals and vitamins to the recommended amounts except calcium which was increased from one-sixth to one-half of the recommended amount. This diet was higher than Diet *2* in protein of good biologic value, 47 per cent coming from varied animal sources.

RESULTS OF DIETARY TREATMENT

After a two to three weeks' trial of Diet *2* all of the students with the exception of the twenty-one with edema were back in school with usual health. There were no further complaints of diarrhea, stomach pains, bone and joint pains, or loss of appetite. No further cases of edema occurred. After four to seven days on Diet *3*, the twenty-one edematous students showed improvement. By the end of one week, the three boys with moderate albuminuria became albumin negative, and after one month, the boy who had had heavy albumin in his urine gave a negative test. In six weeks, all edema had disappeared including the case with generalized symptoms. Repeated estimations of hemoglobin were done on this group and during the six weeks of treatment with Diet *3* the hemoglobin showed increases of 10 to 15 per cent.

DISCUSSION

The development of symptoms of malnutrition can probably be attributed to the inadequacy of several factors in the diet, namely protein of poor

biologic value and gross deficiencies in riboflavin, ascorbic acid, and calcium. However, since the substitution of protein of good biologic value and an increase in ascorbic acid content as shown in Diet *2* arrested the development of further cases of edema and cured the other symptoms, it seems reasonable to conclude that these deficiencies were the direct cause of the outbreak. However, the other deficiencies were no doubt contributing factors. The edema disappeared promptly by the addition of a dietary supplement higher still in protein of good amino acid content and adequate in other essentials, as shown in Diet *3*.

The psychologic effect on the African community of the dietary treatment reported here was important. Unexplained illness or death is associated in the minds of many Angolan natives with witchcraft. Edema (ocilenda) is attributed to the influence of evil spirits, and divination ceremonies are held to exorcise them. When edema began to appear in our students, it seemed as though a panic in the community was inevitable. Parents arrived to take their children home, and several boys with edema fled to their villages. Fortunately, the cooperation of the community was obtained in this experiment, and the boys who had gone home returned for treatment. The cure, therefore, of this outbreak was important, since it became an effective means of education showing that diet cleared up this condition which is the cause of so much superstitious fear in the minds of many of the African group.

SUMMARY

An account has been given of symptoms which developed and dietary treatment which was used in an African mission boys' boarding school when severe signs of malnutrition developed in 166 of the 250 students. Twenty-one of the students showed edema.

Successful results may be attributed to prompt dietary intervention.

REFERENCES

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Convention Trips

Our Denver Convention offers a number of interesting trips in addition to the regular program. These will be scheduled for Saturday, October 8; Monday, October 10; and Saturday, October 15:

(a) Bauer's Restaurant—one of the first commercial concerns in Denver to institute a personnel and sanitation program.

(b) Brookridge Dairy—a modern dairy with a milking parlor. The visit includes a lecture by a veterinarian, demonstrations of equipment, and an opportunity to watch the milking.

(c) Denver Flour Mills. These flour mills have an excellent research kitchen and a high altitude testing kitchen.

(d) Kuner's Canning Company and the Great Western Sugar Company. These two organizations are located in Brighton, a short distance from Denver.

(e) Old Denver Homes. A tour of historic homes is being arranged through the Y.M.C.A.

(f) Opportunity School. Definite plans for the visit to this unusual school will be announced.

In addition to these tours, members may wish to make their own arrangements to visit:

(a) Coor's Pottery in Golden, a suburb of Denver.

(b) Daniel and Fischer Department Store Tower. This spot is open during business hours and provides a view of the mountains.

(c) Hotels. Regular tour hours have been established at the Brown Palace and the Windsor Hotel—two of Denver's most colorful hotels.

(d) Wholesale florists. Visits should be particularly worth while since Denver is the carnation capitol of the world and the principal wholesale producer of flowers for the Midwest.

Tours will be scheduled, too, with hospitals, including Fitzsimons Army Hospital and the new General Rose Memorial Hospital. Then, members may wish to visit the colleges and universities in and around Denver.

The Trips Booth will be located at the Cosmopolitan Hotel, October 8 to 10, and at the Denver Auditorium after that time. Information will be available at this booth concerning visiting hours at places of interest in Denver, and a representative of the Gray Lines Bus Company will be at the booth to arrange for Estes Park, Denver Mountain Parks, and Denver City trips. Plans are being made with the Trailways Bus Company to charter buses for one-day trips to Central City, Idaho Springs, and Berthoud Pass; to the Royal Gorge; and a two-day trip across Loveland Pass to Glenwood Springs and Aspen.

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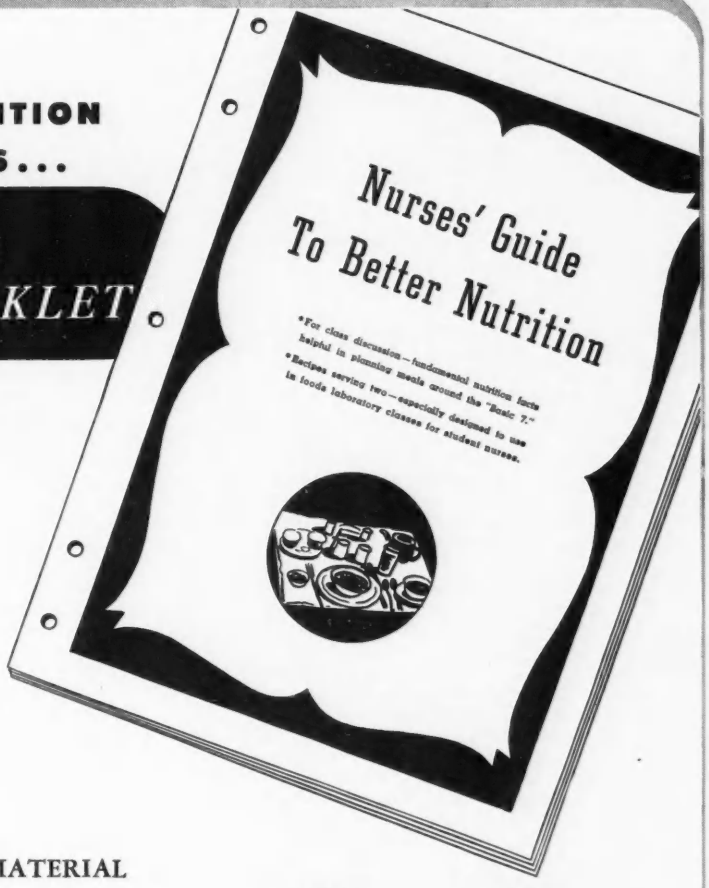
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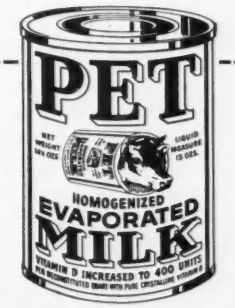

Book Reviews

Foods and Principles of Cookery. By Natalie K. Fitch and Charlotte A. Francis. New York: Prentice Hall, Inc., 1948. Cloth. Pp. 406. Price $5.35.

According to the authors, "this book is intended for student use as a text in a first course of foods on the college level," and is to be accompanied with experience in food preparation in the laboratory. It includes the usual information on true solution, carbohydrates, sugars, cereals and wheat, batters and doughs, milk products, eggs, fish, meats, vegetable cookery, and food preservation. One of the most important features is the appendix which includes three chapters of elementary chemistry related to foods. This is to be used by the student as reference material.

The authors have been successful in making this text easy to read and to understand as well as interesting. At the beginning of some units, there is material of historical interest relating to that particular subject. Other units are headed by notes on the topic's importance to food preparation and consumption.

Features to be commended are the list of supplementary readings given at the end of a chapter and the informative footnotes throughout the book. There are simplified drawings and diagrams used in explanation of certain theories and principles. A description of the characteristics of high standard products that the student will be preparing has been omitted.

For some this book can be highly recommended because of its readability and interest. Others who prefer to delve more deeply into the question for a more complete understanding may want to use this text as supplementary material and fill in gaps from other sources.—*June Albert, Instructor, Foods and Nutrition, Iowa State College, Ames.*

Food Poisoning. Rev. ed. By Gail M. Dack. Chicago: University of Chicago Press, 1949. Cloth. Pp. 171. Price $3.75.

The second edition of Dr. Dack's book follows the same outline that was used in the first edition and thus includes chapters dealing with chemical poisonings in food, poisonous plants and animals, botulism, Staphylococcus food poisoning, Salmonella and alpha-type Streptococci in relation to food poisoning. Likewise, a plan for investigation of alleged food poisoning outbreaks, as well as discussion of the possible significance of other bacteria in the food poisoning problem, and of infections which must be differentiated from the food poisoning problem are again to be found. In general, the book has been revised by adding new subject matter under the appropriate headings, in cases where such has appeared in the literature, and by bringing epidemiological, laboratory, and clinical findings as previously discussed in the first edition abreast of current information. In the case of Staphylococcus food poisoning, additional historical material is also included. The review of the literature, as presented for each subject, is far from exhaustive, but the author has selected wisely, and the book would appear to contain material immediately useful to the practicing diagnostician, to public health personnel, to laboratory technicians, and to research workers. The dietitian will find especially valuable the sections of each chapter which deal with methods for control of food poisoning.—*Dorothy L. Hussemann, Associate Professor of Home Economics, University of Wisconsin, Madison.*

Popular Recipes. By Veterans Administration. Washington, D. C.: Government Printing Office, 1949. Boards, plastic spiral bound. Pp. 248.

This collection of quantity recipes is a compilation of material submitted by Chiefs of Dietetic Service in Veterans Administration hospitals all over the country. The recipes were chosen because of their popularity with both patients and personnel in the contributing hospitals. No mention is made of the person responsible for the compilation. A Foreword states that the recipes were not tested before publication as it was thought that they had been sufficiently tested by the contributing hospitals. Quantities vary and are given sometimes in terms of yield in portions (100 servings usually) and sometimes in weights or measures produced. The size of the portion is always stated, however, so that the yield in portions may be computed. Recipe sections are listed alphabetically and run from Appetizers and Relishes to Vegetables —fifteen sections in all. Blank space is left at the end of each section for notes, and the book lies flat when open.

Since these recipes come from all areas, there is some regional accent which lends interest to the book. Some of the recipes showing regional influence are: spoon bread (four formulas for it); cheese cake; apple pan dowdy; blueberry crumb pudding; Mexican cheese scramble; German potato pancakes; meat croquettes à la Texas; southern creamed potatoes; and creole squash.

Some of the recipes which sound intriguing and make one want to dash right out to the kitchen are: chocolate malted icing; apple dumpling made with French pastry; almond cream pie; Joe's pecan wafers (one wonders who Joe was); and barbecued beef. The last named is not really barbecued but merely thinly sliced cooked beef, covered with a barbecue sauce and heated in it. The sauce sounds delicious. There are two recipes which make use of crumbs in interesting ways; bread crumb griddle cakes and pineapple krummel, the latter using cake crumbs.

Had the recipes been tested, duplication of formulas would undoubtedly have been eliminated. For instance, there are three recipes for Floradora pie, six for lemon pie, and eleven for biscuits.

Then, too, one looks in vain for a formula for French dressing which does not contain paprika or tomato in some form or both. The original French dressing contained neither and was not red in color. Paprika is even listed as an ingredient in the two formulas for celery-seed dressing, though the original had no paprika. Careful editing of the recipes might have eliminated such hybrids.

Nevertheless, this book will prove interesting and helpful to those concerned with quantity cookery, and although not available for general distribution, its usefulness will be spread through the American Dietetic Association Library, which has a copy available for loan to members.—*Mabelle S. Ehlers, Professor and Head, Department of Institution Administration, Michigan State College.*

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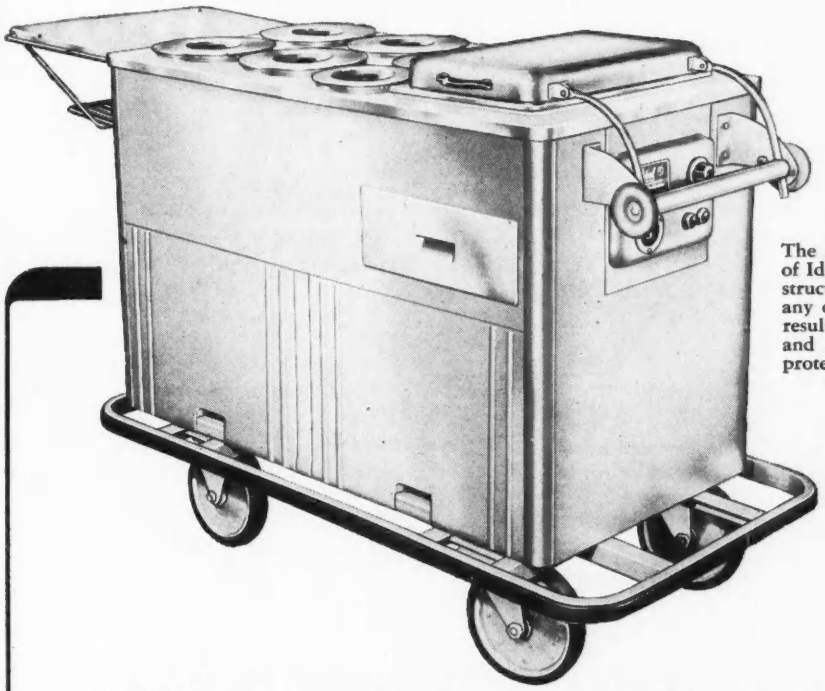

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TENTATIVE PROGRAM, THIRTY-SECOND ANNUAL MEETING THE AMERICAN DIETETIC ASSOCIATION DENVER AUDITORIUM, DENVER OCTOBER 10–14, 1949

Saturday, October 8

1:00 p. m.—Conference of Directors of Approved Internships, Parlor D, Cosmopolitan Hotel

Sunday, October 9

9:00 a.m.—Conference of Directors of Approved Internships, Parlors B, C, and D, Cosmopolitan Hotel

Monday, October 10

9:00 a.m.—Meeting of the House of Delegates, Empire Room, Shirley-Savoy Hotel—Helen E. Walsh, *presiding*

8:00 p.m.—Meeting of the Officers of State Associations, Empire Room, Shirley-Savoy Hotel—Elizabeth Perry, *presiding*

Tuesday, October 11

8:00 a.m.—Breakfasts—History of A.D.A., and Teaching Nutrition to Medical and Dental Students, Silver and Blue Spruce Rooms, Shirley-Savoy Hotel

9:00 a.m.—Registration and Hospitality, Denver Auditorium

9:00 a.m.—Exhibits Open, Denver Auditorium

10:00 a.m.—Opening Meeting, Denver Auditorium Theater—Helen E. Walsh, *presiding*
(Speakers to be announced)

12:30 p.m.—Western States Luncheon, Silver Glade Room, Cosmopolitan Hotel—Doris Odle, *presiding*

3:00 p.m.—Business Meeting of Members of A.D.A., Denver Auditorium Theater—Helen E. Walsh, *presiding*

6:00 p.m.—Dinner Meeting, Placement Bureau Board, Cosmopolitan Hotel—E. Lynnette Gatten, *presiding*

8:00 p.m.—Changing Concepts of Dietary Management, Denver Auditorium Theater—Grace Bulman, *presiding*
Non-Caloric Functions of Fat in the Diet, H. J. Deuel, Jr., Ph.D., Professor of Biochemistry, University of Southern California School of Medicine, Los Angeles
Emotional Factors in Eating and Obesity, Franklin G. Ebaugh, M.D., Director of Psychopathic Hospital, University of Colorado Medical Center, Denver

Wednesday, October 12

Breakfasts for Dietetic Internship Alumnae

8:30 a.m.—Early Risers' Roundup, Our Best Foot Forward, Denver Auditorium—Katharine Brown, *presiding*
A rousing meeting on Public Relations and Vocational Guidance

10:00 a.m.—Symposium on Prematurity—Prevention and Care, Denver Auditorium Theater—Gladys Kinsman Lewis, Ph.D., *presiding*
A panel discussion by:
Harry H. Gordon, M.D., Professor of Pediatrics, University of Colorado School of Medicine, Denver
John A. Lichty, M.D., Associate Professor of Pediatrics and Pediatric Consultant, Colorado State Department of Public Health, Denver
E. Stewart Taylor, M.D., Professor of Obstetrics and Gynecology, University of Colorado School of Medicine, Denver
Helen Cannon, Director, Section of Social Service, Colorado State Department of Public Health, Denver
Joanna Clymer, Clinic Dietitian, University of Colorado Hospitals, Denver
Ruth Couwlier, R.N., Visiting Nurse Service for City and County of Denver

10:00 a.m.—Dietary Instruction for Student Nurses, Denver Auditorium—Corinne Robinson, *presiding*
(Speakers to be announced)

10:00 a.m.—Some Aspects of Food Administration, Tramway Building Auditorium—Mildred Bonnell, *presiding*
Problems of the Small School Lunchroom, Edith Holt, Director of Cafeterias, Caddo Parish Schools, Shreveport, Louisiana
(Other speakers to be announced)

12:00 noon—Luncheon Meeting, History of Nutrition and Dietetics, "Top of the Park," Park Lane Hotel—E. Neige Todhunter, Ph.D., *presiding*

Luncheons for College and University Alumnae

3:00 p.m.—Dietetic Advisory Service to Institutions, Denver Auditorium Theater—Alice H. Smith, *presiding*
A "Cheechako" Dietary Consultant, Penelope Easton, Dietary Consultant, Alaska Department of Health, Juneau
(Other speakers to be announced)

3:00 p.m.—Centennial Celebrations—Three Pioneers in Nutrition, Tramway Building Auditorium—Lillian S. Coover, Ph.D., *presiding.*
Academician I. P. Pavlov—A Centennial, Helen S. Mitchell, Ph.D., Dean, School

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of Home Economics, University of Massachusetts, Amherst

Johan G. C. T. Kjeldahl and His Method for the Determination of Nitrogen—Clara A. Storvick, Ph.D., Professor of Foods and Nutrition, Oregon State College, Corvallis

Contributions of Sarah Tyson Rorer to Early Dietetics, Mary P. Huddleson, Portland, Oregon

3:00 p.m.—PUBLIC RELATIONS AND VOCATIONAL GUIDANCE MEETING, Denver Auditorium—Ruth Roth, *presiding*

Introducing the 6-6 conference.

DINNERS FOR DIETETIC INTERNSHIP ALUMNAE

8:00 p.m.—Nutrition—1949, Denver Auditorium Theater—Margaret A. Ohlson, Ph.D., *presiding*

Recent Advances in Nutrition as the Result of Radioisotope Research, Bernard Roswit, M.D., Director, Radioisotope Unit, Veterans Administration Hospital, Bronx, N. Y.

A Review of Recent Nutrition Research, Helen T. Parsons, Ph.D., Professor of Home Economics, The University of Wisconsin, Madison

(Other speakers to be announced)

Thursday, October 13

BREAKFASTS FOR COLLEGE AND UNIVERSITY ALUMNAE

8:30 a.m.—MEETING OF THE HOUSE OF DELEGATES, Empire Room, Shirley-Savoy Hotel—Helen E. Walsh, *presiding*

10:00 a.m.—COMMUNITY NUTRITION HERE AND ABROAD, Tramway Building Auditorium—Ansta Barr, *presiding*

Observations on Nutrition Research in Some European Countries, Ethel Austin Martin, Director of Nutrition Service, National Dairy Council, Chicago

(Other speakers to be announced)

10:00 a.m.—EFFICIENCY IN FOOD PRODUCTION AND SERVICE, Denver Auditorium Theater—Margaret C. Bernard, *presiding*

Work Simplification and Job Analysis, John T. Lynch, Director of Personnel and Training, Consolidated Grocers Corporation, Chicago

Showing of National Restaurant Association film, "America's Heritage of Hospitality"

12:00 noon—LUNCHEON MEETING, JOURNAL BOARD, (place to be announced)—E. Neige Todhunter, Ph.D., *presiding*

1:30 p.m.—MEETING OF COLLEGE AND UNIVERSITY HOME ECONOMICS FACULTIES AND DIRECTORS OF APPROVED INTERNSHIPS, Empire Room, Shirley-Savoy Hotel—Ercel S. Eppright, Ph.D., *presiding*

Theme: General Education and the Preparation of Dietitians and Nutrition Workers. Discussions of The Truman Report on Higher Education, Home Economics in Higher Education, and A.D.A. Membership Requirements

3:00 p.m.—MATERNAL AND CHILD HEALTH, Denver Auditorium Theater—Adelia M. Beeuwkes, *presiding*

The Child Research Council, Denver—An informal panel discussion by:

Alfred H. Washburn, M.D., Director, The Child Research Council, University of Colorado School of Medicine, and members of his staff: Virginia A. Beal, Betty Szymanski, Aldula Meyers, and Alberta Iliff, Ph.D. Phases of the work of The Child Research Council will be discussed as follows: general aspects, nutrition, blood vitamin levels, hematology and plasma protein levels, and basal metabolism.

The Utilization of Carotene and Vitamin A in Pregnancy and Hyperthyroidism, Agnes Fay Morgan, Ph.D., Department of Home Economics, University of California College of Agriculture, Berkeley

3:00 p.m.—SURVEY OF EQUIPMENT AND ITS SANITARY MAINTENANCE, Tramway Building Auditorium—Fern W. Gleiser, *presiding*

Careful Planning Pays Off, Fred Schmid, Vice-President, Rexall Drug Company, Los Angeles

Sanitation in Relation to Institution Equipment, R. W. Hart, District Engineer, U. S. Public Health Service, Kansas City, Missouri

Placement of Equipment in Relation to Efficiency in Food Service, Mozelle Craddock, Lubbock, Texas

3:00 p.m.—EXPANDING OPPORTUNITIES IN DIETETICS, Empire Room, Shirley-Savoy Hotel—Marjorie H. Siler, *presiding*

Publicizing the Dietetic Profession, Alice Biester, Professor of Home Economics, University of Minnesota, University Farm, St. Paul

A meeting of special interest to members active in Public Relations and Vocational Guidance as well as to members of Home Economics Departments and Directors of Approved Internships

7:00 p.m.—RODEO DINNER HONORING CONVENTION EXHIBITORS, Empire Room, Shirley-Savoy Hotel—Gertrude Austin, *presiding*

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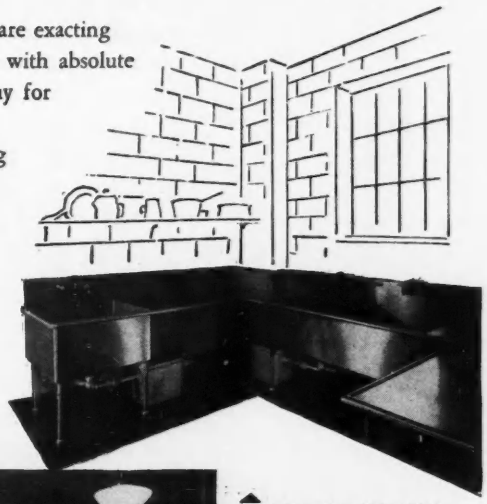

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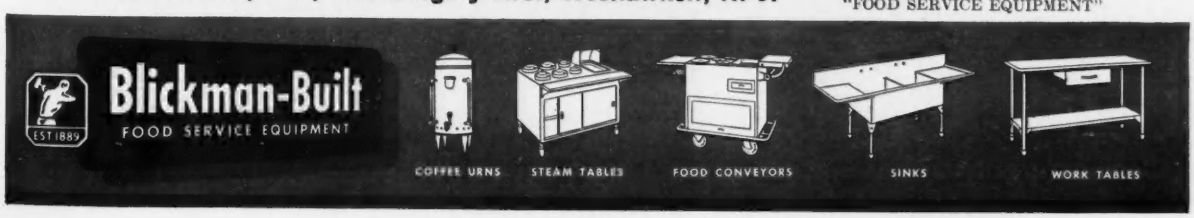

The Rodeo, Cowboys, and the Great West, Clifford P. Westermeier, Ph.D., History Department, Loretto Heights College, Loretto Heights, Colorado

8:00 p.m.—WESTERN RURAL HEALTH PROBLEMS, Denver Auditorium Theater—Elizabeth Perry, *presiding*

Rural Health Services, Franklin D. Murphy, M.D., Dean of Medicine, University of Kansas Medical Center, Kansas City, Kansas

(Other speakers to be announced)

Friday, October 14

BREAKFASTS FOR DIETETIC INTERNSHIP ALUMNAE

8:00 a.m.—BREAKFAST MEETING, FOOD CLINIC DIETITIANS, Silver and Blue Spruce Rooms, Shirley-Savoy Hotel.

Informal discussion

8:30 a.m.—REVIEWS AND PREVIEWS OF PUBLIC RELATIONS AND VOCATIONAL GUIDANCE, Denver Auditorium—Eva Ylvisaker, *presiding*

10:00 a.m.—DENTAL HEALTH, Denver Auditorium Theater

The Influence on the Caries Frequency in Norwegian Children During the Last World War, Guttorm Toverud, Ph.D., Milbank Memorial Fund, New York City

The Relation of Nutrition to Good Teeth, Paul H. Phillips, Ph.D., Department of Biochemistry, University of Wisconsin, Madison

Practical Applications of Research on Dental Caries, Benjamin Dienstein, D.D.S., University of California College of Dentistry, San Francisco

10:00 a.m.—A POSITIVE PROGRAM FOR EMPLOYEE SCHEDULING, Tramway Building Auditorium—Marion D. Floyd, *presiding*

Committee Report on Training Programs for Subsidiary Workers, Ruth I. Madsen, Chief Dietitian, Methodist Hospital, Indianapolis

Techniques of Employee Scheduling—A panel discussion by: Hannah Hotvedt, Chief Dietitian, General Rose Memorial Hospital, Denver. (Other panel participants from restaurant, school lunch, and similar fields to be announced)

Discussants:

Magdalin Espy, Director of Dietetics, St. Luke's Hospital, Cleveland

Ruth M. Kahn, Director of Dietetics, Michael Reese Hospital, Chicago

Kathryn W. Heitshu, Head Dietitian, Medical College of Virginia, Richmond

Edith M. Ferguson, Executive Dietitian, Alameda County Hospital, Oakland, California

R. Alberta Hughes, Instructor in Dietetics, Kennedy Veterans Administration Hospital, Memphis

Janette Carlsen, Dietitian in Charge, Johns Hopkins Hospital, Baltimore

Clara E. Childress, Chief, Education Section, Dietetic Division, Veterans Administration, Washington, D. C.

S. Margaret Gillam, Dietetics Specialist, American Hospital Association, Chicago

12:00 noon—LUNCHEON MEETING, TEACHING DIETETICS TO MEDICAL STUDENTS, Brown Palace

LUNCHEONS FOR COLLEGE AND UNIVERSITY ALUMNAE

2:30 p.m.—RESEARCH IN NUTRITION AND DIETETICS, Tramway Building Auditorium—Marguerite Pettee, *presiding*

The Anti-Peptic Ulcer Dietary Factor (Vitamin U) in Treatment Peptic Ulcer, Garnett Cheney, M.D., Stanford University Hospital, San Francisco

The Theory of the Diabetic Diet, Eaton M. MacKay, M.D., Research Department, The Scripps Metabolic Clinic, LaJolla, California

The Prevention of Rheumatic Fever, Alvin F. Coburn, M.D., Rheumatic Fever Research Institute, Northwestern University Medical School Contagious Disease Hospital, Chicago

Clinical Experience with Vitamin B_{12}, Frank H. Bethell, M.D., Professor of Internal Medicine, University Hospital, Ann Arbor, Michigan

2:30 p.m.—THE ADMINISTRATOR AND THE DIETITIAN, Denver Auditorium Theater—Cora Kusner, *presiding*

Administrators:

Anthony J. J. Rourke, M.D., Superintendent, Stanford University Hospital

F. H. Zimmerman, M.D., Superintendent, Colorado State Hospital

George Currie, M.D., Administrator, University of Colorado Medical Center

Lawrence Payne, Superintendent, Baylor University Hospital

Dietitians:

Helen Hawver Anderson, Director of Dietetics, Stanford University Hospital

Cora Kusner, Chief Dietitian, Colorado State Hospital

Doris T. Odle, Director of Dietetics, University of Colorado Medical Center

Mary Ellen Dambold, Chief Dietitian, Baylor University Hospital

7:30 p.m.—ANNUAL BANQUET, Silver Glade Room, Cosmopolitan Hotel—Helen E. Walsh, *presiding*

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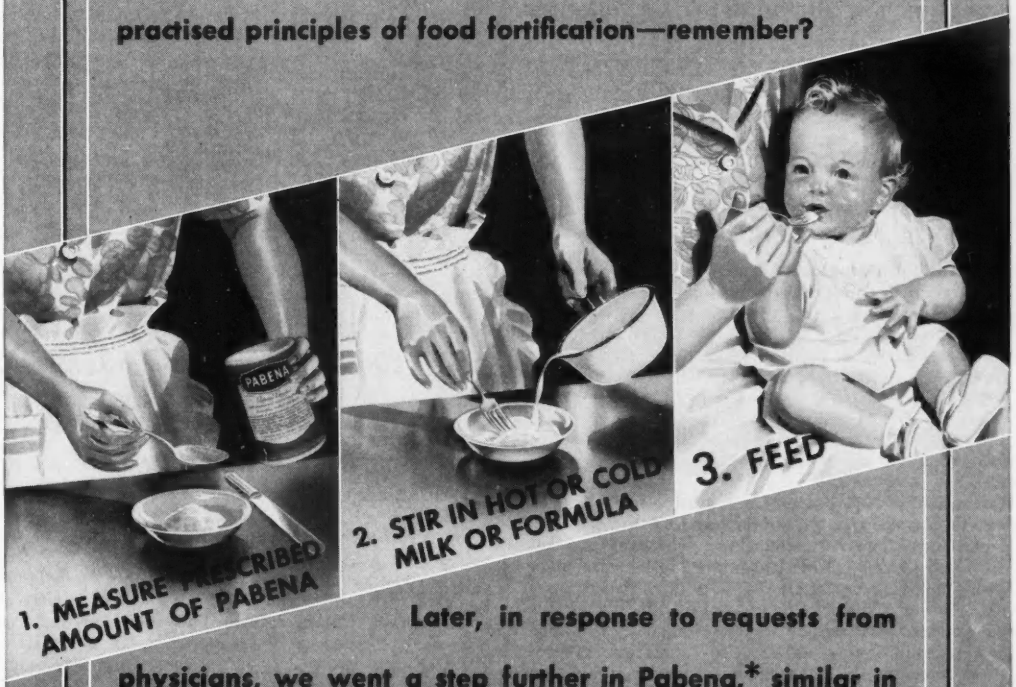

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Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, Dietary Department, The Johns Hopkins Hospital; Mrs. Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; and the Journal staff

THE AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 16, June, 1949

*Clinical experience with a new modified protamine insulin (NPH-50). A. J. Gabriele and A. Marble.—p. 197.

*Cellulose esters in the treatment of constipation. M. M. Marks.—p. 215.

*Dry feedings in gastric motor delay. J. E. Cook and E. C. Malewitz.—p. 222.

New Modified Protamine Insulin (NPH-50). In a summer camp where conditions of diet and activity could be well controlled, ninety-four boys with severe diabetes were given the new modified protamine insulin (NPH-50). It was found that a single dose of NPH-50 provided good or better control of hyperglycemia and glycosuria than did a combination of unmodified and protamine zinc insulin given by separate injections. Studies indicated a more rapid onset and somewhat shorter duration of action of NPH-50 when compared to protamine zinc, yet its action covers a full 24 hr. and probably 25–30 hr. Its maximum effect begins in late afternoon and extends into evening and night. Follow up studies after camp discharge have in general indicated favorable results and suggest that good control of diabetes can be secured under home conditions of reasonable, constant diet and physical activity.

Cellulose Esters in Treatment of Constipation. In these studies sodium carboxymethycellulose and methyl cellulose as well as combinations with anthracene drugs were studied for their laxative effect. Methocel proved to be a far more satisfactory colloidal laxative than any bulk material previously used for constipation. The physiological action of this material produced well formed stools of unusually soft consistency as a result of superior water retaining properties of this synthetic colloid. The average effective dose was 5 gm. of methocel with at least one and one-half glasses of water with each dose.

Dry Feedings in Gastric Motor Delay. The use of a dry diet in treatment of peptic ulcer is valuable as a temporary measure only to tide the patient over the emergency of a gross gastric retention until the indicated medical therapy can be instituted or surgical measures taken if necessary. The diet is high in fat and protein, the food being entirely dry and finely divided. Water by mouth is kept at an absolute minimum.

ARCHIVES OF PEDIATRICS

Vol. 66, May, 1949

*The therapeutic and prophylactic administration of wheat germ oil (vitamin E) in infancy and childhood. S. Stone.—p. 189.

Vitamin E in Infancy and Childhood. The administration of vitamin E in the form of wheat germ oil or wheat oil concentrates, in addition to other vitamins, was effective in arresting or retarding the down hill progress of a number of children with muscular dystrophy. Vitamin E produced increase in muscle tissue proliferation and improvement in muscle tone in cases of myatonia congenita. It is important that fat, protein, and especially vitamins A, K, ascorbic acid, and the B-complex in the diet be adequate together with the administration of vitamin E.

INDUSTRIAL MEDICINE

Vol. 18, June, 1949

*Obesity in industry—the problem and its solution. A. W. Pennington,—p. 259.

Obesity in Industry. In this study twenty overweight individuals lost an average of 22 lb. in an average of three and one-half months. The diet plan is presented. High-protein and low-carbohydrate was the general principle followed in planning the diets.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 139, April 23, 1949

*Syndrome of salt depletion. L. A. Soloff and J. Zatuchni.—p. 1136.

Amino acid needs for maintenance. Editorial.—p. 1152.

Syndrome of Salt Depletion. The treatment of congestive heart failure by restricting salt in the diet and by administering powerful mercurial diuretics is known to be effective. However, overtreatment by either or by both of these procedures can prove disastrous. Four case histories are presented in which the patients died as the result of the intensive dehydration regimen. Three more case histories serve to illustrate how patients receiving the low-salt diet and diuretics developed hyponatremia which was recognized and treated by the administration of salt; these individuals recovered. A brief discussion of the water and salt mechanisms of the body is contained in the article.

MILITARY SURGEON

Vol. 104, June, 1949

*Frozen foods in the tropics. S. C. Smock.—p. 431.

Frozen Foods in the Tropics. This is a summary report of experiences with frozen foods in the tropics as well as in Japan and Korea. The success of frozen foods was dependent upon the availability and adequacy of refrigeration both during transportation and in storage.

THE NEW ENGLAND JOURNAL OF MEDICINE

Vol. 240, June 9, 1949

*The effect of the rice diet on the level of the blood pressure in essential hypertension. D. G. Loofbourow, A. L. Galbraith, and R. S. Palmer,—p. 910.

The Success of the Rice Diet with Clinic Patients. This is a progress report of a study using the rice and fruit diet on

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clinic patients. It is hoped to determine whether this method of treatment is a practical one for use with ambulatory patients living in their normal surroundings and eating with other members of the family on a regular diet. The total number of patients instructed on the rice diet for nine months was fifty-six. Strict adherers were sixteen (28 per cent); moderate adherers were twenty (36 per cent); and delinquents, twenty (36 per cent). In the clinical picture a significant drop in blood pressure occurred in six out of the sixteen patients who adhered strictly to the diet and in the group of moderate adherers a significant drop occurred in three of twenty patients.

THE NEW YORK JOURNAL OF MEDICINE

Vol. 49, June 1, 1949

*Protamine edema in diabetes mellitus. M. Ant.—p. 1306.

Vol. 49, June 15, 1949

*The salt poor diet. M. Plotz.—p. 1439.

Protamine Edema in Diabetes Mellitus. Protamine edema syndrome seems to be characterized by its appearance in diabetics using protamine zinc insulin exclusively, by anemia, by edema, by low renal threshold for glucose, moderate albuminuria, high blood cholesterol, high uric acid, high creatinuria. All these symptoms disappear on discontinuance of protamine zinc insulin. Because protamine zinc insulin has been used extensively since 1936, it is possible that much of the increase in vascular degeneration noted may be due to it.

The Salt-Poor Diet. This is an excellent summary article outlining foods allowed on a salt-poor diet. Palatability is stressed and a list of condiments and suggested uses are given.

PUBLIC HEALTH NURSING

Vol. 41, June, 1949

*Dietary aids and dangers for the aging. C. W. Crampton.—p. 320.

Dietary Aids and Dangers for the Aging. This article presents three most important deficiencies that can be aided by a corrected diet in old age—calcium, iron, and protein. Also two of the most important nutritional excesses, carbohydrate and cholesterol, that can be aided by dietary means are considered. Discussion of these points is given clearly in outline form.

SCIENCE

Vol. 109, June 24, 1949

*The antithyroid factor of yellow turnip. E. B. Astwood, M. A. Greer, M. G. Ettlinger.—p. 631.

The Antithyroid Factor of Yellow Turnip. It has been well established that goiter may be induced in laboratory animals by diets of certain vegetables such as cabbage, turnip, or rape. A recent study of the antithyroid effect of various foods in man disclosed marked activity in the yellow turnip or rutabaga. This antithyroid principle has now been isolated in crystalline form and its structure determined.

AMERICAN RESTAURANT MAGAZINE

Vol. 55, May, 1949

*Would you buy your own restaurant? J. V. Malone.—p. 79.
How to clean your stainless steel equipment. R. E. Paret.—p. 84.

Restaurant Personality. This is an introduction to a new series of articles dealing with the factors which affect the personality of a restaurant which, all too frequently, were lost during the war years. The series is presented in an effort to help operators achieve new standards of service, strengthen their position, and improve profits. Six important factors which are to be covered in subsequent articles are: (a) type of service, (b) physical appearance, (c) menu and food standards, (d) character of personnel, (e) advertising, merchandising, and public relations, and (f) attitude toward public and employees.

BAKERS' HELPER

Vol. 91, May 14, 1949

*Frozen baked foods specials.—p. 93.

Vol. 91, June 25, 1949

*Danish pastry production.—p. 73.

Frozen Baked Foods. The production of frozen food products of any type requires exactly the same skill, judgment, and material needed for the production of non-frozen foods. The following are essential in the production of frozen foods: high quality food, proper formulas, good production practices, sub-zero freezing temperatures, proper holding temperatures, and proper packaging. Recipes are given for the following: short cake, baking powder biscuits, apple pie filling, cherry pie filling, berry pie filling, pie dough for top crust, pie dough for bottom crust, and blueberry muffins.

Danish Pastry. Danish pastries are luxury items, and should be made and sold on that basis. Some basic rules that should be followed in making Danish pastries are: (a) dough should be mixed cool and kept cool during the rolling-in and make-up periods; (b) dough-mixing time should be held at a minimum; (c) fat used for rolling-in should be of the same consistency and plasticity as the dough; (d) rolling-in of the fat should be done in such a manner that the dough will consist of alternate, unbroken layers of fat and dough; (e) proofing temperatures should not exceed 85° F. The article is illustrated by pictures and one of the basic recipes for Danish pastry is given.

FOOD INDUSTRIES

Vol. 21, April, 1949

How lecithin affects cost and quality of candy. L. R. Cook.—p. 83.
*Choose the proper colors—and raise plant efficiency. W. F. Otto.—p. 88.
Controlled atmospheres improve refrigerated storage. R. M. Smock.—p. 105.

Vol. 21, May, 1949

*Discoveries point way to nutritional advances. C. G. King.—p. 82.
*Portable bins show value in handling dry bulk goods.—p. 92.
*Frozen orange juice concentrate already hailed as a leader.—p. 116.
*Coatings against corrosion and deterioration. R. J. McMahon.—p. 78.
*New packages and products.—p. 102.

Proper Colors. Improved production, higher employee morale, better sanitation, elimination of hazards, and reduced maintenance—all are possible through the use of proper color schemes in the food processing plant. In the modern application of color, the inherent energy of each hue should be employed to control emotional reactions. With a "hospital approach," white has been used because it seemed to create an "antiseptic" atmosphere. As a result, when a man walks into the production rooms of many large food processing plants today, the inevitable white—on walls, ceilings, machines, equipment, and workers' uniforms—reduces the opening of his eye pupils, causes rapid blinking, and definitely induces fatigue. Now, colors that give a sanitary air and also are pleasant and restful to the eye have been adopted. Colors which can be used include various greens, blue-greens, blues, and many pastels.

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Nutritional Advances. Developments in nutrition during the past two years reflect notable progress in the fields of vitamins, trace elements, halides, amino acids, and related materials. Folic acid appeared as a new member of the B-complex group. Then, vitamins B_{12}, B_{13}, and B_{14} were found to play a role in anemia. Halide deficiencies have been recognized as contributing to a serious degree to impaired human health. It has been recommended by the National Research Council that the adult calcium intake be increased by 20 per cent. In recent studies it has been found that tryptophan is at least as important as niacin in the treatment of pellagra. Nutrients such as pectins, polyphenols, cellulose, fats, and non-essential amino acids may prove advantageous in the diet. Studies have shown a relation between choline and hypertension and cancer.

Portable Bins. Large-bin handling of dry powdered materials is regarded as a possibility in many segments of the food industry, as the result of an experiment now being closely watched by bakers and millers. The basic advantages are the practical elimination of exposure to contamination, greater efficiency in handling and storage, and little or no loss in transit. The disadvantages are cost of returning empty bins to source of supply, cost of storing empty bins, and concentrated bulk and weight which some physical plants are not constructed to handle.

Frozen Orange Juice. Because of high quality and moderate cost, the consumer acceptance of frozen orange juice concentrate is mounting rapidly. Arbitary standards of quality have been set up by the U. S. Bureau of Plant Industry in Florida. In general, the finished concentrate blend is standardized at a 14:1 ratio which is 50 per cent above the minimum for canned juice.

Plastic Coatings Prevent Corrosion. Vinyl plastics find a new use as coatings on floors, ceilings, walls, and equipment in dairies and other food plants. The plastic is especially developed for resistance to milk and its derivatives, is resistant to cleaners, sterilization agents, and moisture, and inhibits bacterial growth.

What's New in Food Products and Packages. Just being introduced to the market are garlic-flavored roasted almonds, curried peanuts, a coffee-aroma compound for enriching food flavors and aromas, fried banana chips, low-fat and high-fat soy flour, sea squab fillets, wafers manufactured from coffee flour, and a banana syrup for use in toppings, desserts, and ice creams.

HOSPITALS

Vol. 23, June, 1949

*Consultations that bring efficiency to the hospital kitchen. C. Scheps.—p. 64.

Resolving some problems of receiving and storing. R. Whitefoot, Jr.—p. 75.

Kitchen Efficiency. The procurement of economical and efficient food service depends on the cooperation of the dietitian, the representative of the equipment manufacturer, and the maintenance or plant engineer. Factors to consider in placement of equipment are: easy work accessibility for employees; steady and smooth flow of food preparations; and ease and economy of equipment servicing.

INSTITUTIONS

Vol. 24, June, 1949

Selection and maintenance mean long life to floors.—p. 24.

*Expansion paves way for prize-winning dietary department.—p. 58.

Model Dietary Department. The dietary department at Hermann Hospital, Houston, Texas, was designed to provide utmost sanitation, maintenance ease, and efficiency. Outstanding features are an electric eye on doors between dishwashing unit and kitchen; placement of equipment away from the wall; all custom-built, stainless steel service equipment with rounded corners and rolled edges; rolling work tables and utility tables provided with stops which lock to form stable work tables; air conditioning; and fluorescent lighting. Pictures and details of arrangements and equipment are given.

THE NATION'S SCHOOLS

Vol. 43, April, 1949

*The school cafeteria. Dallas administers its 72 lunchrooms through a centralized system. F. Welch.—p. 64.

* Our experience with plastic dishes in institutional feeding. H. E. Stewart.—p. 65.

Vol. 43, June, 1949

*Success of Federal Lunch Program depends primarily on local administration. J. M. Murtha.—p. 52.

*Orange juice for the school lunch. O. M. Thomas.—p. 56.

Centralized School Cafeteria. In Dallas, Texas, seventy-two lunchrooms in senior, junior high, and elementary schools are controlled through a centralized system. At the board of education headquarters are a purchasing, a maintenance, and an accounting department with which the lunchroom department cooperates. The staff of the lunchroom department consists of a director, a supervisor of training and personnel, a food supervisor, and five area supervisors. From the general budget the board of education provides space in school buildings for lunchrooms, installs the plumbing connections to the outside walls of the lunchrooms, furnishes water, buys the large equipment for the kitchens and dining rooms; the rest of the expenses are charged to the lunchroom department. The menus are made at the central office by the menu committee—the food supervisor as chairman and the five area supervisors. The menu offers a soup, a plate lunch which consists of meat, two vegetables, bread and margarine, salads, desserts, milk, fruit juices, and ice cream; other items are sold à la carte. Each manager sends food requisitions to the office each week, ordering meat, fresh produce, and frozen foods weekly for semi-weekly delivery; once every two weeks she sends requisitions for canned goods, staples, and spices. Milk, bread, and ice cream are ordered daily. All food is bought on an open market basis. Carefully tested recipes are given to the lunchroom managers to assure uniform products of standardized portions. Portion costs have been compiled to fit the needs of the system. The Community Chest pays for plate lunches and milk for needy children. No discrimination is made between the paying child and the non-paying, for the principal gives a token to the child who drops it in the coin machine as if it were money. There is a continuous training program for managers, on-the-job training for all employees, and understudy training in each lunchroom. There is a monthly managers' meeting designed to increase technical skill, to improve work organization, and to cope adequately with employee and job relations problems.

Plastic Dishes. Plastic dishes were put into use in the dining halls of North Carolina State College in June, 1947. The advantages which they have found are: 17 plastic soup bowls can be stacked in the same space as 4 china bowls; also, 76, 10-in. plastic plates can be stacked in the same space as 33 china plates; plastic dishes can be bought in a nice variety of colors of subdued tones; they weigh much less than china and can be handled more easily both in the dining room and at the dishwashing station; they do not chip or break easily; coffee stays hot in plastic cups throughout the meal; and they are much less noisy than chinaware. The disadvantages which they have found are: at first cups split near the handle, but they have now used some for thirty days without splitting; a stain develops shortly after they are first used, but it can be easily removed; knife scratches can be seen on the plates so that they acquire a dull appearance after being used a short time. Although the plastic

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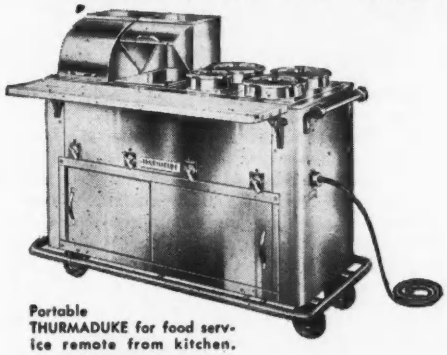

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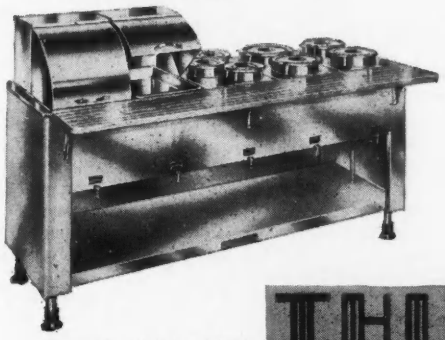

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dishes have these disadvantages, the difference in the initial cost is saved many times over because of the smaller breakage expense.

Orange Juice for School Lunch. School lunches, which often fail to provide one-third to one-half of the child's daily nutritional allowance of ascorbic acid, may meet this requirement by serving a 6-oz. glass of concentrated orange juice for only the cost of paper cups and the labor involved. Serving orange juice not only provides good nutrients but also teaches the child the habit of including citrus fruit in his daily diet. A 95 per cent acceptance has been found if the juice is properly reconstituted. When properly stored, retention of ascorbic acid is excellent; it is best at 40° F. but good at 60° F. Recipes are given for the use of the concentrate.

PRACTICAL HOME ECONOMICS

Vol. 27, April, 1949

* Publicizing the school cafeteria. M. McMillin.—p. 220.

Vol. 27, May, 1949

The art of garnishing. H. H. Boileau.—p. 272.
*Layout and equipment for the school lunch. C. M. Davis.—p. 277.

Vol. 27, June, 1949

*Table settings for today. H. Sprackling —p. 321.
*Facts about American dinnerware.—p. 324.

Publicizing School Cafeteria. To meet the ever-increasing costs of food supplies and overhead, the school cafeteria must depend upon a large and steady volume which is attained only if many students become regular and enthusiastic patrons. In San Bernardino, California, a school advisory committee was forced to consider many problems that concern the cafeteria, such as hours of lunch, food served, cafeteria discipline, or any phase of operation. The objective of the school cafeteria department is not to make a profit, but to serve the maximum amount of food at cost. To reach their objective, they have published in the local Sunday newspapers the school cafeteria menu for each day of the following week, together with the names of the eighteen schools fortunate enough to have cafeterias. The lunches sell for 15 cents in the elementary schools and 20 cents in the junior high schools. These figures are usually advertised in the weekly publicity article, so that the parents may know how economically their children can eat lunch at school. All lunches are prepared under the nutritional standards set up by the federal government.

School Lunch Layout and Equipment. Location is of the first importance in establishing a lunchroom. Multiple or single lunch periods, outside lines, weather conditions, and nearness to student activities are also points to be considered. Size is the first consideration in laying out the kitchen. The ideal size is one-half as large as the dining room. Equipment should be placed in such a way that the food can flow as smoothly as possible from the delivery platforms to the pupil. Economy of space; accurate controls that will result in less waste; elimination of steam table odor; cleanliness of the kitchen; cost of fuel; operating and maintenance cost; safe and efficient working conditions; fire and explosive hazards; and cleanliness are factors to be considered in purchasing lunchroom equipment. Thirteen points are suggested for final, overall decisions on layout and selection of equipment.

Table Settings. Development of table settings through medieval times to the present is sketched briefly. Present trends of using bright and exciting colors in table coverings, interesting designs, and use of place mats are discussed. The acceptance of simple patterns for silver and china, and shapes of various standard table items are also discussed. That beauty and self-expression are more important in table setting than conventionality is the principal emphasis.

American Dinnerware. Excerpts from a new chart prepared by the U. S. Potter's Association are printed here. The chart gives information regarding materials used in china, and points out differences to be expected in the finished products. Styles, designs, and patterns are discussed and pictured.

RESTAURANT MANAGEMENT

Vol. 64, May, 1949

*The future of in-plant feeding. A. J. Crotty, Jr.—p. 59.
*Avoiding mistakes in making changes. E. W. Fair.—p. 83.
*Building between-meal business. M. L. Casteen.—p. 84.

In-Plant Feeding. The growing importance of in-plant feeding can be recognized when one learns that in 1944 more than eight out of ten factories employing more than 1000 workers had food service facilities. Most of the growth occurred during the 1930's; additional growth is a result of wartime experience. At present the employees in industrial cafeterias are well-trained, many from the hotel and restaurant field. The need for menu variety is especially pronounced since the customers are the same people day after day. Studies of production rates give conclusive evidence of the contribution of hot meals to employee production.

Cash Register Accuracy. Fifteen suggestions for keeping losses from money-handling at a minimum are listed here. They are as follows: (1) do it slowly; (2) keep the customer's money in sight until change is made; (3) be sure coins are in right compartment; (4) handle bills separately; (5) count change twice; (6) cash a check first then make change; (7) avoid placing change in customer's hand; (8) get rid of make-shift equipment; (9) restrict money handling; (10) take particular care when big bills appear; (11) foreign coins and slugs are worthless—examine coins received; (12) flatten out all bills in the register; (13) keep a small pad of paper handy for figuring; (14) repeat figures aloud to the customer; (15) study the methods others use.

Promoting Off-Hour Sales. The most important factor in snack business is quick service. Serving of fine quality products in fair quantity, varied selection of flavors, planned specials, use of fresh fruits in season—all help to improve trade. Consideration should be given for age groups to which the establishment appeals; teen-agers demand rich ice cream dishes, adults prefer simple items. Many suggestions are included for preparation of milk, ice cream, and fountain specialties.

WHAT'S NEW IN HOME ECONOMICS

Vol. 13, June, 1949

Meat, fish, poultry, eggs, milk, cream, ice cream, cheese.—p. 30.
Cereals, flour, bread, fats, oils, miscellaneous—p. 32
*Good packaging saves you money 2 ways.—p. 89.

Good Packaging. Standards set to define a good freezer package are: (a) it must be strong enough to withstand zero temperatures and handling during storage without splitting or tearing; (b) it must follow the outlines of the food in order to be frozen closely enough to exclude all possible air pockets; (c) it must be compact, so as not to waste storage space; (d) it should be grease-resistant if fatty foods are to be packaged; and (e) it should be moisture-vapor-proof. Two general types of freezer packages which meet these specifications are containers of wax or plastic coated cardboard, glass, or plastic; and wrapped packages, which use sheet materials especially designed for food freezing purposes. Suggestions are given to wrap the following specific foods: meats, poultry, fish, baked goods, dairy products, leftovers, sandwiches, candy, raisins, cup cakes, desserts, salads, etc., for lunch boxes, either grouped in the freezer according to kind for daily selection, or over-wrapped and sealed as assorted complete lunch units; and whole meals.

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Mealpack Corporation of America, New York, New York
Mead Johnson & Company, Evansville, Indiana
National Association of Margarine Manufacturers, Washington, D. C.
National Cranberry Association, Hanson, Massachusetts
National Dairy Council, Chicago, Illinois
National Live Stock & Meat Board, Chicago, Illinois
Public Health Committee of the Paper Cup & Container Institute, New York, New York
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Pet Milk Sales Corporation, St. Louis, Missouri
Pfaelzer Brothers, Chicago, Illinois
Quaker Oats Company, Chicago, Illinois
Ralston Purina Company, St. Louis, Missouri
Rich Products Corporation, Buffalo New York
W. B. Saunders Company, Philadelphia, Pennsylvania
Ad. Seidel & Son, Inc., Chicago, Illinois
John Sexton & Company, Chicago, Illinois
Standard Brands, Inc., New York, New York
Toledo Scale Company, Rochester, New York
Tricolator Company, Inc., New York, New York
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Seventh Pacific Science Congress

The May 27, 1949 issue of *Science* carries a report by Knowles A. Ryerson of the Seventh Pacific Science Congress which convened in Auckland and Christchurch, New Zealand, February 2 to May 2. The report of the meeting on Public Health and Nutrition is as follows: "Because of their direct bearing on the welfare and the continued progress of all peoples of the Pacific, primitive and more advanced, the discussions of this section were especially significant. The war had provided new knowledge and experience in regard to a number of the important diseases—especially filariasis, leprosy, leptospirosis, malaria, schistosomiasis, and related diseases. These diseases and the general problems of nutrition and dental caries received excellent and critical appraisal. As an outgrowth of these discussions an urgent recommendation was made that a Pacific epidemiological center for the correlation of information on diseases be established. Systematic food analyses of native foods, using modern techniques, were recommended, along with surveys of diet and food habits. Surveys of disease-carrying insects, fungi, and viruses were also recommended.

"The joint session with the sections on anthropology, agriculture, and the social sciences, in which health and nutrition problems of dependent peoples, the changing agriculture, and the special problems of mixed bloods and their relation to administration were all thoroughly considered, was among the most significant discussions of the entire congress."

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Lemon Jell-O, whipped and blended with applesauce, makes an unusually delicious dessert that costs approximately . . 1½¢ A SERVING!

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Jell-O and Jell-O Puddings make an endless variety of appetizing, easily prepared desserts that cost you from 1½¢ to 4¢ a serving. Many other desserts cost two or three times as much.

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News Notes

New NRC Board. The Agricultural Board of the Division of Biology and Agriculture, National Research Council, held its first meeting in April in Washington. The Board has announced its purposes to be: advancement and interpretation of scientific knowledge concerning agriculture, initiation of recommendations relative to agriculture, and dissemination of technical and deliberative conclusions among the proper agencies and population.

The first officers of the new board are: Chairman, Roy C. Newton, Director of Research, Swift and Company; and Vice-Chairman, Leonard A. Maynard, Director, Cornell University School of Nutrition. LeRoy Voris, Executive Secretary of the Food and Nutrition Board, will serve as Acting Executive Secretary.

The present committees of the Agricultural Board are: Animal Health; Public Health Aspects of Brucellosis; Animal Nutrition; Feed Composition; Production, Distribution, and Quality of Milk; and Veterinary Services.

U. S. Air Force Medical Service Organized. The National Military Establishment has announced the organization of the U. S. Air Force Medical Service, which will provide the Air Force with its own medical service. The medical service in the Air Force was formerly under Army control.

Officer personnel of the new Air Force Medical Service will consist of Regular, Reserve, and National Guard Air Force Medical officers, dentists, nurses, medical allied scientists, veterinarians, women medical specialists, and medical service officers. Thus, there are now opportunities for dietitians in the Air Force. Major General Malcolm C. Grow has been appointed Surgeon General of the U. S. Air Force.

New Associate Chief of Children's Bureau. Dr. Leona Baumgartner took office on June 2 as Associate Chief of the Children's Bureau, Federal Security Agency. She will have special responsibility for the Bureau's health services and will administer the Bureau's $18,500,000 in annual grants to the states to extend and improve maternal and child health services and services for crippled children. In addition, she will advise on the Bureau's research and reporting on the health needs of children and mothers.

Second Annual Nutrition Workshop in Illinois. The Illinois State Nutrition Committee sponsored its second annual nutrition workshop June 5–10, 1949 at the University of Illinois. The theme of the workshop was "Selling Good Nutrition to the Community." Special speakers presented information relating to public speaking and to the use of the newspaper and radio as nutrition tools. Janice M. Smith, Professor of Nutrition, University of Illinois, presided each day at an informal session on nutrition information.

During daily four-hour sessions, the members of the workshop, dividing into two sub-groups, worked on two specific problems, namely: (a) How to Develop and Sustain Interest in Nutrition Among Community Groups, and (b) How to Interest Professional Personnel in Nutrition. After each group had worked out possible methods of solving these two problems, it applied the principles to several specific projects suggested by members of the sub-groups. For example, a program of nutrition education for patients in a tuberculosis sanatorium in Illinois was outlined. A plan for improving the volunteer nutrition service offered by the Parent-Teacher Association's summer round-up program in one of the counties was developed, and in addition, a method of imparting nutrition information to school lunch managers was worked out in detail.

Mrs. Elizabeth K. Caso, Instructor in Nutrition, Harvard School of Public Health, acted as coordinator for the workshop. Final reports of the workshop are to be prepared and sent to those who attended as well as to the members of the Illinois State Nutrition Committee. A limited number of additional copies may be obtained from the Department of Home Economics, University of Illinois.

Dr. Elvehjem Honored. At the annual meeting of the National Live Stock and Meat Board in June, Dr. C. A. Elvehjem of the University of Wisconsin was presented with an award in recognition of his contribution to the science of biochemistry and his leadership in the field of nutrition. The National Live Stock and Meat Board has placed several research grants at the University of Wisconsin in support of studies which have been carried on under Dr. Elvehjem's direction, and it was said that his findings have broadened the knowledge of the nutritive value of meat and contribute immeasurably to the subject of nutrition.

New York State Nutrition Conference. The eleventh annual New York State Nutrition Conference was held, July 19–20 in Ithaca. The program included the following topics: "Changing Food Habits" by Dr. Myrtle Logan, Psychiatric Clinic, Strong Memorial Hospital, Rochester; "Some Obstacles in the Path Toward an Adequate Diet" by Dr. Anton J. Carlson, School of Medicine, University of Chicago; "Report of Bread Hearings" given by Leonard A. Maynard, Director, School of Nutrition, Cornell University; "Your Foods and Mine Under the Federal Food, Drug and Cosmetic Act" by C. A. Herrmann of the Food and Drug Administration; "The Role of Recent Research on B-Vitamins in Human Nutrition," by L. C. Norris, Professor of Nutrition, Cornell University; "Nutrition Surveys" by Harold H. Williams, Professor of Biochemistry, Cornell University; and "Working Together in the Community" by Robert A. Polson, Department of Rural Sociology, Cornell University.

Fourth National Conference on Citizenship. From May 14 to 18, Rose M. V. Mirenda attended the Fourth National Conference on Citizenship in New York City as A.D.A's representative. Mrs. Mirenda reports that the theme of the conference was: "Responsible American Citizens—Their Job in Politics, Their Job in the World Today, Their Job in the Community." Each phase of the theme was discussed in keynote speeches by outstanding personalities in representative fields. Following these speeches there were group-discussion sessions. The pooled ideas arising from these sessions were summarized at the concluding general meeting.

The essence of the work on the three phases of citizenship follows; "Responsible American Citizens—Their Job in Politics": Politics is not a job for others, but for all of us. We must work to overcome citizen apathy towards political

Army Announcements Concerning Personnel

First Lieutenant Helen R. Barefoot, R-2504, previously separated from the service, has been recalled to active duty.

First Lieutenant Virginia L. Jones, R-1394, has been promoted from Second Lieutenant to Temporary First Lieutenant.

The following dietitians have been separated from service under the provision of the Separation Policy established by the Surgeon General:

Captain Mary L. Ford, R-578, 598 Needham Place, Dubuque, Ia.
1st Lt. Oweta Ross, R-2486, Rt. #1, Box 74, Cleburne, Texas

BEEF

RECIPE FOR NUTRITIOUS BEEF STEW

that tastes better—longer! 6 gallons

Chuck	15 lbs. (bone out)	Onions	6 lbs.	Pepper	¼ oz.
Carrots	6 lbs.	Celery Leaves	10 oz.	Bay Leaf	½ oz.
Potatoes	9 lbs.	Parsley (chopped)	8 oz.	Beef Fat	1½ lbs.
Tomatoes	4½ qts.	Water	2¼ gals.	Flour	9 oz.
Turnips	3 lbs.	Salt	¾ oz.	Ac'cent	¾ oz.

1. Cut meat 24 pieces to the pound, brown beef, onions, salt, pepper in three-fourths of fat, add flour, and continue browning.
2. Add tomatoes and water, tie bay leaf, celery leaf and parsley in a bag and add. Simmer slowly.
3. Cut carrots and turnips 1½" x ¾"—dice potatoes to 1 inch. Saute carrots and turnips in remaining fat.
4. After meat has simmered 1½ hours add sauteed vegetables. Continue cooking for 1½ hours longer. Add potatoes 20 minutes before meat is done.
5. Five minutes before removing from fire, add Ac'cent

You'll notice one wholly distinctive ingredient in this recipe. It's Ac'cent. Otherwise the recipe is quite usual. With Ac'cent added, this Beef Stew—rich and nutritious—will have an added fullness of natural beef-stew flavor that will surprise you.

Ac'cent intensifies, sustains natural flavor

Ac'cent adds no flavor, no aroma, no color of its own. It brings out the good *natural* flavors that are already in the foods. Ac'cent also helps *conserve* flavors—guards against "flavor-loss" in the waiting period from preparation to serving.

Use Ac'cent in meats, poultry, soups, gravies, seafoods, cooked vegetables, dressings.

Not a flavoring!
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Ac'cent is a 99+% pure MSG (mono sodium glutamate in crystal form). It is a natural, not a synthetic product. It is the sodium salt of the amino acid, glutamic acid, which occurs naturally in all vegetable and animal protein. Ac'cent is wholesome and good. In 4 oz. and 1 lb. cans, and 100 lb. drums.

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- ☐ *Boiled New England Dinner*
- ☐ *Veal Fricassee*
- ☐ *Baked Meat Loaf*

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participation, enlisting community support, and giving community focus to issues and goals rather than to political parties and personalities.

"Responsible American Citizens—Their Job in the World": We must develop world citizenship and become "world minded." We can be loyal to our own community and country while being citizens of the world. We must learn to know, understand, and appreciate other people as individuals and as groups and refrain from enforcing our opinions on others. In this way, we can hope to get along with ourselves and with other people.

"Responsible American Citizens—Their Job in the Community": A good community is a combination of many things and is achieved by many people. Unless you can get together with your neighbor, regardless of race, creed, or socio-economic status, you cannot be a good citizen, and you have little chance of doing much to better your community.

School Food Service Association Convention. The third annual convention of the School Food Service Association will be held November 16 to 18 in Washington, D. C.

The tentative program, as released, shows plans for meetings with speakers talking on the following subjects: "What Makes a Good Demonstration?" with a discussion led by members of the U. S. Office of Education and Extension Service; "Training Employees" by Jane Crow and Kathryn Smith; a round table on "Selection of Equipment," "Techniques of Supervision," and "Sanitation and Food Service;" "Trends in Food Consumption and Implications for Child Feeding" by Dr. Hazel K. Stiebeling, Chief, Bureau of Human Nutrition and Home Economics, and Dr. Miriam Lowenberg, Child Health Project, Rochester, Minnesota. Another round table discussion on nutrition education will cover the work in rural elementary schools, urban elementary schools, secondary schools, college dining halls, and industrial and commercial eating places.

Dietetic Interns Graduate. On August 3, *Milwaukee County Institutions* graduated the following dietetic interns: Mary A. Johnson, Iowa State College; Patricia Norris and Virginia Irgens, University of Minnesota; Keyomi Kanagawa, University of Wisconsin; Margaret Gautsch, Carnegie Institute of Technology; Joan Kemper, Mundelein College; Velda Milbrot, Stout Institute, and Matsuko Kawaharada, University of Hawaii.

The following dietetic interns were graduated from the *Good Samaritan Hospital*, Portland, Oregon, August 24: Joan A. Bennett, Mary K. Waits, Betty F. Knudsen, E. Maxine Firestone, Helen B. Riley, and Joan M. Bartlett.

On June 27, the *Bronx V.A. Hospital* graduated the following dietetic interns: Margaret Beck, Joan Bradley, Shirley Davis, Dolores Kapinsky, Claire Keefe, Mae Linder, Jane Merryday, Lois Mosca, Doris Musselman, Mary Ryan, Luella Sedgwick, Lou Smith, Barbara Stone, Phyllis Tinnirella, Mildred Umstead, Betty Wells, and Doris Zito.

The *University of Oregon Medical School Hospitals and Clinics* graduated four dietetic interns on June 30: Aldene Schulte, Harriet Gibbon, Barbara Kight, and Erldean Christensen.

The graduates of the *Cook County School of Nursing Hospital Dietetic Course* are as follows: Elvira Bagdon, June Boss, Mary Capizzi, Maryon Dillon, Patricia Ann Finney, Mary Harrington, Frances Hynan, Jean Perry, Dolores Pfister, Constance Ragusa, June Reichenbacher, and Helen Stomi. The presentation was held July 27 in Chicago.

St. Marys Hospital, Rochester, Minnesota, recently graduated the following interns: Adele Anderson, Bernadine M. Borowski, Jeanne Britt, Marjorie A. Clark, Jeanne E. Clarke, Valerie Dubney, Mary S. Foran, Marjory J. Glauner, Margaret E. Hill, Marjorie F. Johnson, Burniece P. Kinder, Fae O. Larson, Sister M. Leona, Geraldine A. Lloyd, Frances Murphy, Joyce L. Peterson, Sister Ann Perpetua, Elizabeth E. Ramsey Margaret M. Schoell, Mary T. Simonett, Loretta A. Smith, Kathryn M. Wagner, Rebecca A. Werk, and Dorothy J. Wiesner. When each intern received her certificate from Dr. Russell M. Wilder, she also was given a gift copy of the Mayo Clinic Diet Manual.

Food Handlers Course. The Community Nutrition Section of the Maryland Dietetic Association has sponsored a 1-hr. course for food handlers. Three subjects were covered: Modern Methods of Dishwashing, Food Storage in Institutions, and Personal Hygiene.

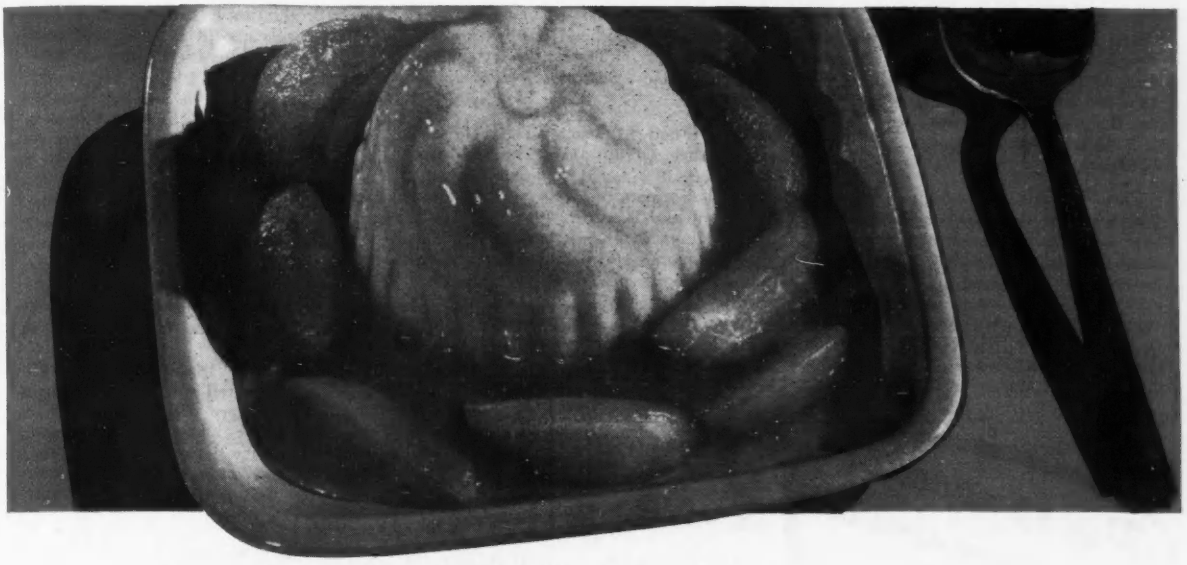
A dietitian presented each one of the three papers. Each food handler was given a copy of the publication "From Hand to Mouth" (Federal Security Agency, U.S. P.H.S.) Community Health Series #3, and a copy of "Directions for Utensils Washing" issued by the Baltimore City Health Department.

Egg In Gravy. Home economists of the new U.S.D.A. suggest using egg as a thickening for chicken gravy, as well as for the nutritional value it supplies. Beat an egg thoroughly, add a little hot thickened broth slowly, and stir the mixture into the remaining broth. Pour over the chicken in the baking dish. Eggs may also be added to other sauces to build up food value.

L. Captoria Gwyn. The A.D.A. office has been notified of the death of L. Captoria Gwyn on June 16 in Berkeley, California. Miss Gwyn had been an A.D.A. member since 1931 and had been employed in General Hospital, Kansas City, Missouri, and Flint-Goodridge Hospital of Dillard University in New Orleans. She had made her home in California since 1943.

Bertha Johncox. It has been learned that Bertha Johncox, an A.D.A member since 1932 and life member since 1944, passed away on December 3, 1948, in Palmyra, New York. She had been dietitian at Middletown State Hospital, Middletown, New York.

Helen Miller Martin. Word has been



Cut dessert costs ...with delicious Farina Pudding

Its tempting flavor wins patients' favor!

Scarcely 2 pennies per serving. That's all delicious Farina costs you!

Take advantage of this amazingly low-cost way to make your patients' appetites respond. They'll look forward to Farina pudding for *dessert* just as they already do to *hot* Farina for breakfast*. It has that same creamy-smooth texture, flavor-heightened to a rich butterscotch taste . . . a welcome touch of home-goodness to tempt patients' lagging "end-of-summer" appetites. And for interesting variety, try adding chopped dates, pecan meats or cooked dried apricots . . . combinations that make Farina Pudding a dessert *all* your patients will enjoy *often.*

Important, too, Quaker Enriched Farina enables you to serve a dessert with high nutrient content. Added elements of Calcium, Iron, Riboflavin and Vitamins B_1 and D make Farina's nutritional value greater than that of the wheat from which it was made.

For **economy . . . flavor . . . nutrition . . .** serve new, easy-to-make Farina Pudding regularly!

Another Quantity Recipe prepared for dietitians by the Quaker Oats Institutional Kitchen.

If you are not on our recipe card mailing list, please write Mary Alden, Institutional Test Kitchen, The Quaker Oats Company, Chicago 4, Illinois.

FOR TASTY BREAKFASTS

with "wake-up" appeal, serve hot Quaker Enriched Farina *often.*

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FARINA PUDDING

Dessert
50 servings

Portion: scant ½ cup (3¼ oz.) — Total Weight of Pudding: 11 lb. 2 oz.

INGREDIENTS	AMOUNT	WEIGHT	COST
Milk	5 quarts		
Quaker Farina	2½ cups	14 oz.	
Brown Sugar	2 cups	1 lb.	
Salt	1½ tablespoons		

Directions

1. Scald milk in double boiler.
2. Mix together farina, brown sugar and salt. Add to scalded milk, stirring constantly. Stir frequently until mixture thickens.
3. Cover and continue cooking 15 minutes or longer, stirring occasionally.
4. Pour into individual molds (or large baking pans). Chill; unmold and serve with fruit sauce or top milk.

Date Pudding: Add 2½ cups (1 lb.) chopped dates after pudding has thickened.
Pecan Pudding: Add 1½ cups chopped pecan meats after pudding has thickened.
Apricot Pudding: Add 2 cups chopped cooked dried apricots (drained) after pudding has thickened.

FARINA PUDDING — THE QUAKER OATS COMPANY INSTITUTIONAL KITCHEN

received of the death of Helen Miller Martin, at her home in Denver. Mrs. Martin had been an A.D.A. member since 1945, and had held positions at the National Jewish Hospital, Denver; Warren Hospital, Phillipsburg, New Jersey; and Alum Rock Sanitorium, San Jose, California.

The Dietetic Association Victoria. The work of the dietitan in Australia has broadened considerably in scope since its beginning in 1930. The Dietetic Association was formed in 1935. Its growth is outlined in an interesting article in the March, 1949 issue of the *Journal of the Dietetic Association Victoria*. One of the most recent advances of this Association is found in the above-mentioned *Journal*. With the current year, the title of this official publication was changed from "The Newsletter" to *Journal of the Dietetic Association Victoria*.

World Food Situation. The Food and Agriculture Organization, in reporting the results of a world food appraisal as of April, has announced that more food was produced and eaten in 1948–49 than in the previous year, and that the world is now producing as much food as before the war. However, since there are more people to feed, average consumption is lower than prewar. Europe benefited most from last year's increased production.

Rice production was still about 3 million metric tons less than prewar. Sugar production has increased to above prewar levels except in Asia, and there is a danger of a sugar surplus when Java and the Philippines regain full production levels. Oils and fats reached a total production within 5 per cent of prewar, and world meat production remained at about the same level as 1947–48—about 8 per cent below prewar. The increased supply of cereals, which added to supplies of animal feeds, particularly in Europe and North America, has been favorable for increasing livestock numbers. This, together with improved pasture conditions is expected to result in larger meat and milk production in the current year.

Much of the increased production which has occurred since 1939 has been in countries where prewar consumption was high. Thus, there is now an even greater disparity between countries than before the war, when the average diet by nutritional standards was grossly inadequate.

New CARE Program. CARE has arranged for the delivery of baby food packages to Europe. One package costs $10 and is available for delivery in twelve European countries.

Manual on Conference Techniques. Section Two of the American Hospital Association's Hospital Personnel Administration Manual, entitled "Conference Techniques," compiled by the Committee on Personnel Relations, explains the importance of regular staff meetings in solving problems of hospital administration.

The manual not only presents basic procedures involved in using the conference system, but also goes into detail on such things as proper meeting places, equipment necessary to conduct a conference, and what to do after the session is over.

School Lunch Recipes. A recipe booklet titled, *School Lunch Recipes Using Canned Foods*, has been issued by the National Canners Association. Although the book fits any type of school lunch service, it is prepared especially for the government-sponsored school lunches. Each recipe states at the beginning the amount of protein-rich food and the amount of vegetable or fruit per serving in order to save the menu planner work and time in planning meals to meet the government's meal-type requirements as specified by law.

Home Freezing Manual. An eighty-page booklet, *Freeze with Ease*, has been prepared by the Appliance Division of Westinghouse. Its content could prove useful to almost anyone with a home freezer, for it gives detailed directions for the successful freezing of fresh fruits and vegetables as well as meat, fish, and fowl. It also lists ways of freezing cooked foods, breads, pies, and cakes, and tips on the use of frozen foods. The basis for much of the information included was obtained during a study on frozen foods at the Pennsylvania State College, conducted under the guidance of Dr. Pauline B. Mack, Director, Ellen H. Richards Institute.

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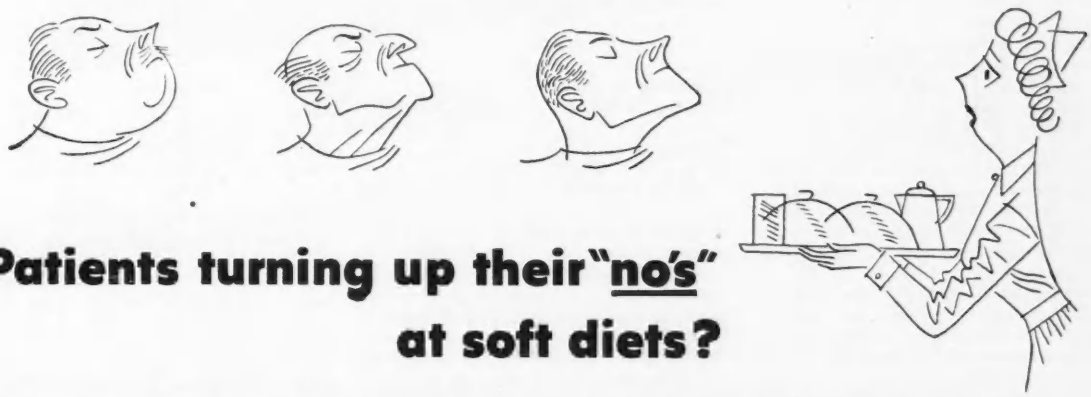
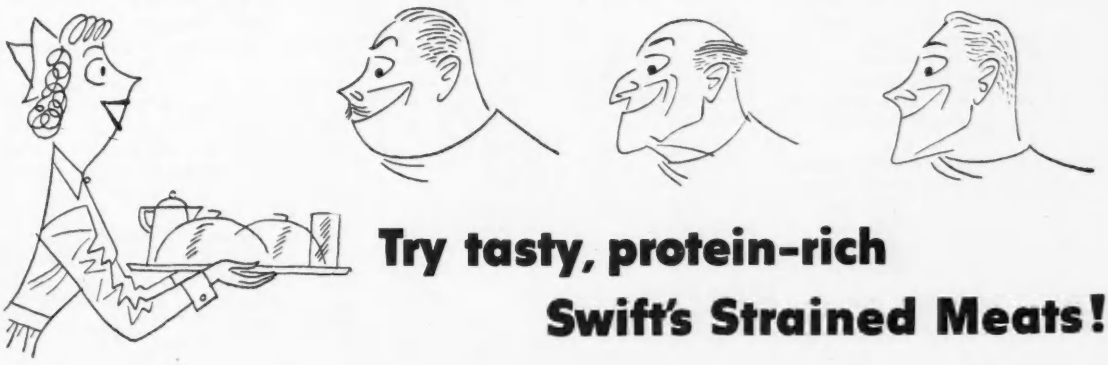


Patients turning up their "no's" at soft diets?



Try tasty, protein-rich Swift's Strained Meats!

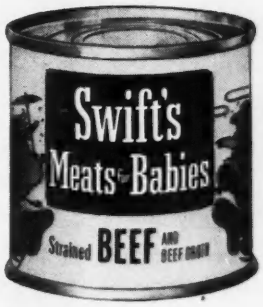
A palatable, natural source of complete, high-quality proteins

It's not surprising that soft-diet patients develop appetite-apathy. The things they have to eat!

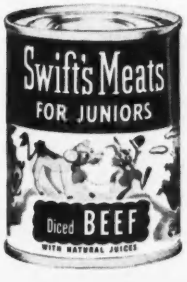
To help overcome this anorexia many doctors now recommend Swift's Strained Meats. Delicious, *real* meat that patients on soft, smooth diets can eat and *enjoy*.

Swift's Strained Meats provide an excellent base for high-protein, low-residue diet. Rich in iron, they're chemically and physically non-irritating. These appetizing meats make *all* the known essential amino acids available *simultaneously* for optimum protein synthesis.

Swift's Strained Meats are tasty enough to tempt tired appetites. They supply goodly amounts of B vitamin to help stimulate patients' natural appetite for other foods. Swift's Strained Meats are 100% meat—a variety of six kinds: beef, lamb, pork, veal, liver, heart. Originally prepared for infant feeding, they're exceptionally fine in texture—may easily be used in tube feeding. Convenient—ready to heat and serve.



6 varieties



For patients who can take foods of less fine consistency—Swift's Diced Meats offer tender morsels of nutritious meats with tempting flavors patients appreciate.

The makers of Swift's Strained Meats invite you to send for your copy of "The Importance of Protein Foods in Health and Disease" —a physician's handbook of protein feeding, written by a doctor.

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ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

All nutritional statements made in this advertisement are accepted by the Council on Foods and Nutrition of the American Medical Association.

Government Booklet Revised. The Children's Bureau, Federal Security Agency, has recently released a rewritten edition of "Prenatal Care, A Guide for Parents." The booklet deals with mental health of the expectant mother, the father's role during the mother's pregnancy, and the preparation of other children for the new addition to the family.

Another section explains the physical changes at different stages in pregnancy, morning sickness, the Rh factor, premature birth, diets for heavy and thin women, and the importance of blood tests.

New Meat Grading. In an effort to help housewives buy meat more intelligently, the Production and Marketing Administration of U.S.D.A. has added the grades of "veal" and "calf" to the classifications used in federally graded meat. With these terms, the meat buyer can distinguish meat from young beef animals.

Meat marked "veal" usually comes from animals less than fourteen weeks old, which have been fed largely on milk and milk products. The flesh usually is fine textured and light pinkish-brown in color.

The marking "calf" indicates meat from animals which have passed the veal stage but have not yet taken on the characteristics of beef. The meat is firmer and coarser in texture than veal and a deeper red. It also has more fat.

New Standards for Canned Potatoes. The Federal Security Agency has amended standards of identity for canned potatoes so that canners may use certain calcium salts as firming agents. Some of these salts are: purified calcium chloride, calcium sulphate, calcium citrate, monocalcium phosphate, or any mixture of these salts to prevent potatoes from breaking up in the can. The use of these salts must be stated on the label.

Butter Grading. The U. S. Department of Agriculture has recently released a bulletin on grades for butter. The highest grade under U. S. standards is U. S. Grade AA or 93-score butter. Ranking next is U. S. Grade A or 92-score, which is good quality butter. The third grade is Grade B or 90-score; it is satisfactory as table butter but lacks some of the finer characteristics of the two top grades. Trained graders carefully examine the butter for body, color, and salt before giving it an official grade.

Plentiful Foods. The U. S. Department of Agriculture has submitted the following list of plentiful foods currently available:

- Apples
- Cabbage
- Chickens (broilers and fryers)
- Cooking fats
- Dairy products (processed)
- Fresh prunes
- Fish (fresh and frozen)
- Hens
- Irish potatoes
- Onions
- Peanut butter
- Sweet potatoes
- Tomatoes

Correction. The chart (Fig. 1, p. 608) of the article "Training of Supervisors" which appeared in the July issue of the JOURNAL mentions the "*Meat* Preparation Unit." This should read, "*Main* Preparation Unit."

News of State Associations

California Dietetic Association. The California Dietetic Association held its annual convention May 8 through 10 in San Francisco. The following lectures were presented: "The Anti-Ulcer Factor in the Treatment of Peptic Ulcers," by Dr. Garnett Cheney, Stanford University Hospital, San Francisco: a round table discussion on "Low Sodium Diets," presented by Dr. David Rytand; and "The Place of the Dietitian in the Program of Better Hospitals for Better Health," given by Joseph G. Norby, President, American Hospital Association.

At the June meeting of the *Bay Section*, California Dietetic Association, the following officers were elected: Chairman, Virginia Stokdyk; Vice-Chairman, Sylvia R. Mitchell; Secretary-Treasurer, Frances Folsom Dahl.

Kansas Dietetic Association. Since June McIntire, elected as the 1949-50 President of the Kansas Dietetic Association has moved to Illinois, the President-Elect, Mary Smull will assume this office.

The officers of the *Topeka Dietetic Association* are: President, Mary A. Streator, and Secretary-Treasurer, Mary Z. Stahl.

The *Kansas City Dietetic Association* has chosen Patricia Payer as President, Mary C. Male as Vice-President, Dorothy Hopkins as Secretary, and Pauline Kegereis as Treasurer.

Minnesota Dietetic Association. The Minnesota Dietetic Association held its annual meeting in Minneapolis, May 26 and 27. Some of the subjects presented were: "Public Relations and the American Dietetic Association" by Dr. Margaret Ohlson, Secretary of A.D.A.: "Food Cost Control" presented by Mabel Mathias, Northwestern Hospital, Minneapolis; and "Nutritional Status of the People in Newfoundland" by Dr. Russell M. Wilder, Sr., Mayo Clinic, Rochester.

The *Rochester Dietetic Association* recently published a booklet titled "Eating In and Eating Out." This booklet deals with the correct choice of foods in the restaurant or in the home. It was developed because the committee realized the need for helping the many professional and business women who eat out or prepare their own meals to select their food wisely. The first 300 copies were financed by the Olmsted County Chapter of the American Red Cross.

Ohio Dietetic Association. The elected officers of the *Cleveland Dietetic Association* for next year are: President, Mary Scaravelli; President-Elect, Anna Banus; Vice President, Marjorie Curry; Secre-

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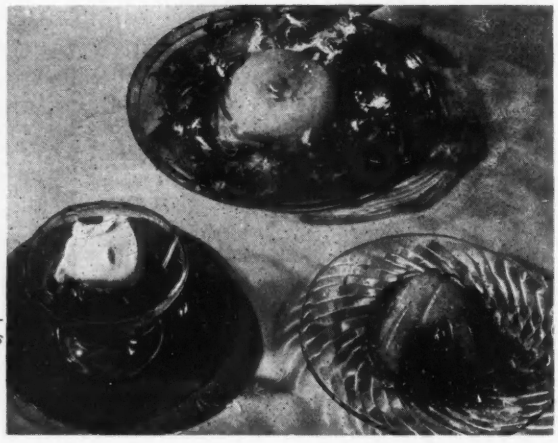

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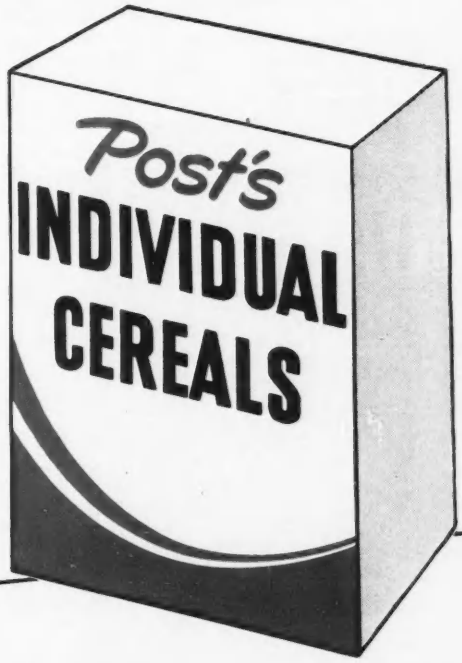

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POST'S *Individual* CEREALS

tary, Helen Bowditch; and Treasurer, Marie Lavelle.

The *Columbus Dietetic Association* has elected the following officers for the coming year: President, Gene Sando; President-Elect, Anna Gernes; Secretary, Donna Jean Gunthorpe; and Treasurer, Ellen Bower.

Wisconsin Dietetic Association. Members of the *Milwaukee Dietetic Association* have appeared with Mrs. Breta Griem in a television program, "What's New in the Kitchen" seen over WTMJ–TV twice a week. Ideas for future programs include vocational guidance, weight reduction diets, hints for diabetics, and table settings.

News of Advertisers and Exhibitors

A new food conveyor called, "Selective-Menu" has been introduced by *S. Blickman, Inc.* of Weehawken, New Jersey. It has a flexible top deck which allows use if interchangeable square or rectangular utensils instead of only round-well utensils. Eighteen utensils in six sizes come with each conveyor, allowing a large number of top-deck arrangements. There are two round wells for liquid foods, and two heated drawers which provide for special diets and rolls.

S. Blickman, Inc. has also begun publication of a new monthly publication, *Trends*, which will be sent to hospital administrators and executives. Its purpose is to furnish these executives with helpful information on equipment.

American Meat Institute has just published a booklet called "Six New Ideas for the Thrifty Use of Meat." Ways that homemakers can conserve meat are emphasized. The contents explain how three or four meals can be made from a single cut of meat. Each idea has been worked out in the Institute's test kitchen. Copies of this booklet can be purchased for 5 cents each.

The *Cereal Institute* has recently published a pocket-size booklet called, "A Basic Breakfast Pattern." Prepared for distribution to the layman, it explains the need for a breakfast pattern as one tool for the laymen to use in working toward an adequate dietary. Emphasis is also given to the contributions of a good breakfast toward the Recommended Dietary Allowances.

The Fleischmann Division of *Standard Brands* has just released a new slide film called, "Time for Tea." It has been produced for use in training hotel and restaurant employees in the proper methods for brewing and serving both hot and iced tea.

The *American Can Company* has started construction of a new plant in Milwaukee, production from which is expected to service the food and beverage industries in Wisconsin and adjacent states. Scheduled for completion in 1950, it will have a capacity of around 2 million cans a day.

Seco Company has recently started production on a new sectional type soda fountain unit called the "Bobtail." The two sections—a dispenser section and a three-compartment sink—may be used together to form a complete unit or as individual separate sections. The sink section may be placed on either end of the dispenser section. Overall length of the whole unit is 6 ft. 10 in.

A copy of a new leaflet from *The Borden Company* has been received in the JOURNAL office. Titled "A Story of Mince Meat," it includes a short history of the use of mince pies, as well as a discussion of the ingredients needed for None Such Mince Meat and three recipes. It is illustrated by frames from the movie "How Condensed None Such Mince Meat is Made."

Libbey Glass Company has announced a new plan for judging the longevity of its "bounce" tumblers. The date the glasses were made is now added along with the white etched star which has always been imprinted on the bottom of each glass. To the left of the star a single figure indicating the year of manufacture has been added. The figure to the right of the star will indicate the quarter of the year.

Handibook of Meat Cookery has just been released by the Home Economics Division of *Swift & Company*. It is a small, compact pamphlet prepared to help homemakers cook meat properly. Sections are included on meat cookery with both dry and moist heat, with instructions for each method for beef, pork, lamb, and veal, as well as cured and

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smoked pork cuts. In an effort to condense as much information as possible into the sixteen pages of the pamphlet, the instructions as to cooking times are all given in table form. Additional procedures applicable for frozen meats and special cuts are given in the running text preceding the tables.

Junket Brand Foods has prepared a set of "diet lists" for distribution by physicians to patients. Suggestions for fourteen therapeutic diets are included in an 11 by 4½-in. envelope.

The Food and Drug Administration of the Federal Security Agency has reversed its ruling on labeling of foods containing monosodium glutamate, declaring that foods contain monosodium glutamate need no longer be labeled as containing artificial flavoring. A letter from the Food and Drug Administration to *International Minerals & Chemical Corporation*, manufacturer of Ac'cent, says in part: "In the light of the evidence before us, we are not disposed to maintain the position that monosodium glutamate be designated on the label as an artificial flavoring. None of the standards that have been promulgated up to the present under the law provide for use of monosodium glutamate. Where it is used in an unstandardized food its declaration and ingredient would be required by the name monosodium glutamate as provided in section 403(i) (2)."

The *Florida Citrus Commission* has published a booklet on *Citrus Fruits and the Nation's Health*. The contents deal with the dietary values and some practical pointers on using these fruits. One chapter covers the use of citrus fruits in the normal diet. This is followed by a section on the therapeutic values of citrus fruits in sickness and convalescence. Also contained in the booklet are some tables showing the nutritive composition of these fruits. The booklet is attractively designed and appropriately printed in orange and black.

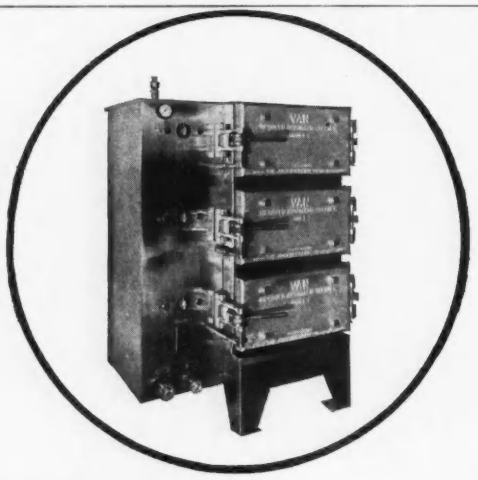
H. J. Heinz Company is now celebrating its eightieth anniversary. Founded in Pittsburgh in 1809 by Henry John Heinz as a door-to-door neighborhood venture, the company today sells its products in 200 countries and territories around the world. It operates twelve factories in the U. S., as well as factories in Canada, Australia, England, and Spain. Horseradish, grown in a ¾-acre patch in Sharpsburg, Pennsylvania, was the first product Mr. Heinz produced. It won almost immediate acceptance, for Mr. Heinz was the first to sell horseradish in clear glass bottles. At present the principal products of the well-known Heinz line are soups, baby foods, ketchup and other tomato products, baked beans, pickles, spaghetti, and condiments.

Gerber's Baby Foods is distributing a booklet titled *"Comparing the Cost of Home and Commercially Prepared Baby Foods."* In it is reported a survey conducted by both a commercial laboratory and a panel of home-makers. The home-makers prepared baby products under conditions in their own homes, keeping track of cost and time. In a "home kitchen" of the commercial laboratory, the same products were prepared under more rigidly controlled conditions. Tests were made on strained beans, chopped beans, strained peaches, chopped peaches, custard, and scraped beef. Although the cost in the commercial laboratory was less than for the home-prepared foods, in both situations the cost was more than for commercially packed baby foods, except for custard. The reports of the panel of home-makers and the laboratory have been combined, and graphs and tables are included.

Another new *Gerber* booklet is *"Special Diet Recipes"* which contains recipes using baby foods which are appropriate for use in five special diets: bland, soft, dental or mechanically soft, low-residue, and liquid. Suggestions are also made for the use of garnished and color harmony of foods.

American Stove Company, Heavy Duty Equipment Department, has recently introduced a new Magic Chef gas deep fat fryer. The fryer has a 14-in. square tank holding 30 lb. cooking oil, and operates with a frying depth of 3 in. A snap-action thermostat is attached for frying temperatures, with a safety shut-off valve included. It is designed so that it may be added to other Magic Chef units of a like depth.

The Best Foods, Inc., has announced the appointment of Mary Presper as Director of Home Economics. In her new position she will be in charge of all activities of The Best Foods Consumer Kitchens in New York City. She was formerly associated with Hotpoint, Inc.



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